Paper
TRADE JOURNAL

Dec. 27, 1951

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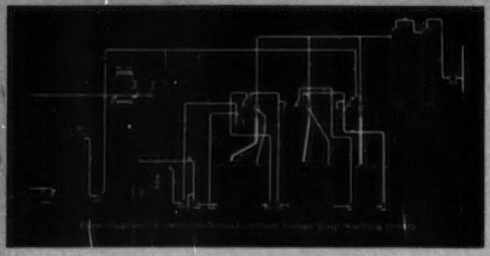
PULP IS WASHED CLEANER with Swenson-Nyman Equipment



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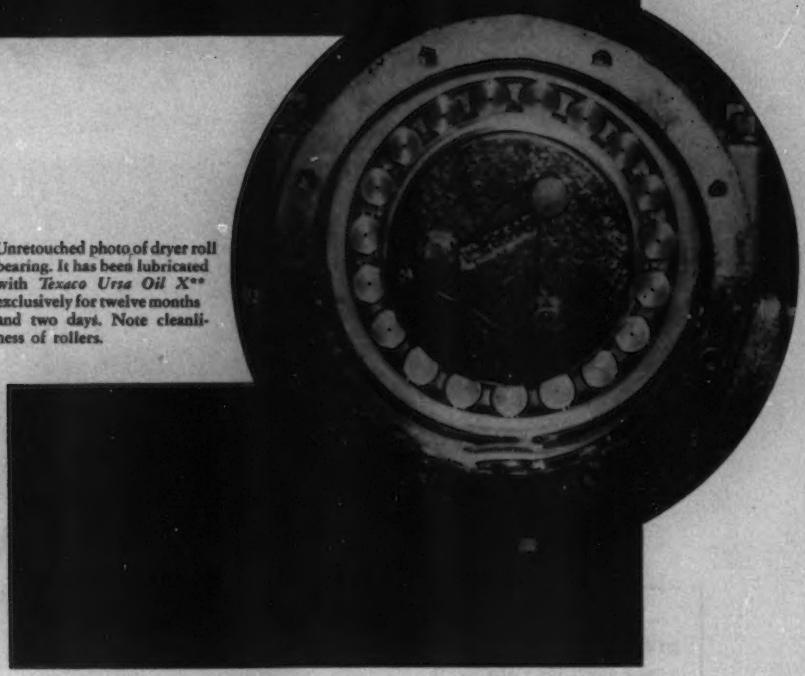

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Paper TRADE JOURNAL

ABP

VOL. 133 DECEMBER 21, 1951 No. 25

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NEXT WEEK

G. P. O. Awards.

Because of some Congressional reason, the G. P. O. award date has been changed for this quarter from December 17 to December 20. Next week will cover the complete awards.

The article on Waste Sulphite Liquor Burning by Bengt Brunes will be concluded next week.

Merry Christmas.

REMEMBER THESE DATES

JAN. 14-17: Plant Maintenance Show and Conference, Convention Hall, Philadelphia, Pa.

JAN. 21: Chicago Section of the Technical Assn., of the Pulp and Paper Industry, Meeting, Chicago Bar Assn., Chicago, Ill.

JAN. 23-25: Annual meeting of the Canadian Pulp and Paper Ass'n, Mount Royal Hotel, Montreal, Que., Canada.

FEB. 19-22: American Pulp & Paper Assn., Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y. Starts on Tuesday this year. 75th Annual Dinner Thursday, Feb. 21.

FEB. 20: Salesmen's Assn. of the Paper Industry, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, N. Y.

FEB. 18-21: Technical Assn. of Pulp and Paper Industry, Annual Meeting, Commodore Hotel, New York, N. Y.

MARCH 16-18: American Institute of Chemical Engineers, Atlanta Biltmore Hotel, Atlanta, Ga.

MARCH 24-26: The National Paper Trade Assn., Annual Meeting, Waldorf-Astoria, New York, N. Y.

MAY 5-8: Third Costing Conference of the Technical Assn., of the Pulp and Paper Industry, at the Sherman Hotel, Chicago, Ill.

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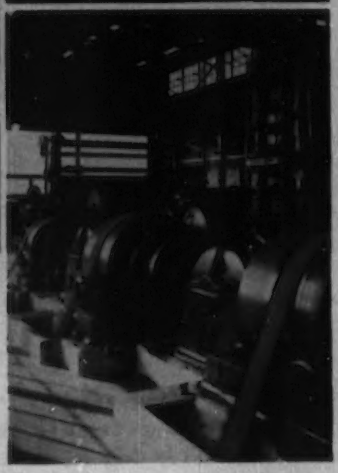

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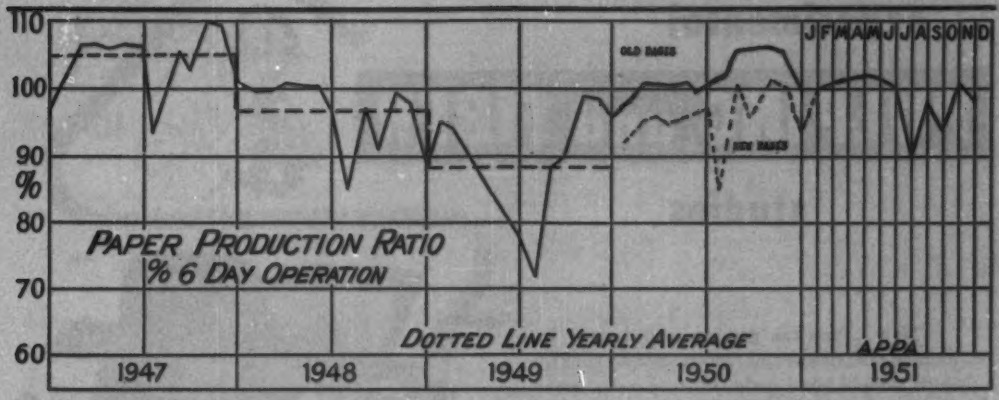
OUR BUSINESS



Brief of Important Figures

Source	Production	WEEK ENDING Dec. 8, '51	Nov. 10, '51	Dec. 9, '50
APPA	Paper Production Percent Capacity[3]	99.2	100.0	100.1
	Unbl. Kraft Paper Production Percent	107.7	105.0	98.1
NPA	Paperboard Operating Ratio Percent Inch Hours	86	86	106
		Oct. 1951	Sept. 1951x	Oct. 1950
APPA	Paper Production[6] (Except Newsprint and Building Papers) Tons	957,000	852,577	841,000
	New Orders Tons	941,000	834,911	836,000
	Unfilled Orders Tons	958,800	971,280	899,200
	Shipments Tons	953,000	846,505	850,000
		Nov. 1951	[4]Oct. 1951	Nov. 1950
NPA	Paperboard Production Tons	794,359	1,055,647	1,168,958
	New Orders Tons	685,733	1,110,638	1,225,369
	Unfilled Orders Tons	365,363	487,788	722,046
	Our Customers Activities Index[1]	**Latest Mo.[6]**	**Previous Mo.[6]**	**Year Ago[6]**
FRS	Manufactures Total Index	233	230	224
	Durable Mfg. Index	275	270	253
	Nondurable Mfg. Index	198	197	201
	Chemical Products Index	309	303	272
	Mfg. Food Products Index	185	187	190
	Printing and Publishing Index	180	166	172
ODC	Magazine Advg.-Printer's Ink Index	379	376	338
	Retail Sales Combined Adjusted Index	372.4	381.0	355.7
	Drug Index	251.8	249.7	240.6
	General Merchandise Group Index	392.6	417.4	378.9
	Grocery and Combination Index	449.6	452.8	394.5
	Prices Index			
BLS	Consumers Price Index[1]	186.6	185.5	174.6
	Wholesale all Commodities[2]	177.6	178.0	169.5
	Wholesale Foods[2]	188.0	187.3	177.2
	Commodities other than Farm Products and Foods[2]	166.9	167.2	159.2
	Wholesale Pulp and Paper[2]	199.7	198.7	167.1
	Purchasing Power of Dollar, Consumers Prices[1]	53.6	53.9	57.3
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	429.4	431.3	403.2
	Unemployment Compensation Initial Claims (M)	724	950	558
	Miscellaneous Carloadings–Thousands of Cars	1,967	1,533	1,963
	Electric Output (Million KW hr.)	35,296	37,510	32,639
PTJ	Average 32 P & P Common Stocks as of Dec. 15	$37.12	$38.23	$32.95

[1] 1935-39 = 100 Unadjusted Index.
[2] 1926 = 100.
[3] New 6-7 day basis.
[4] For Five Weeks.
[5] For details see APPA Monthly Statistical Summary—October 1951 Estimated Figures.
[6] Latest Month Available on Request.
x Revised figure.

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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, December 19, 1951.

Knowing full well that the odds are 100 to 1 that this won't be read before Christmas.

Also reminding ourselves of Edward Everett's remark about the written word (as quoted in KVP's Philosopher's "Season's Greetings"): "Half of the people who take the paper will not see the article. Half who do see it will not read it. Half of those who read it will have no interest in it"—

Nevertheless, we extend the *Journal's* greetings to our readers. We hope the Christmastide found you rich in the respect of those who know you; blest with the love of your kin; humbly grateful for the endowment of a sound mind and courageous spirit; deeply compassionate for the less fortunate; kindly and impersonal to those with whom you do not agree.

With these gifts—besides which the wealth of the world is but trivia—we shall not long for White Christmases and for the things we used to know. Instead, we shall be young in the spirit of adventure, strong in the faith that, as Longfellow well said:

"There is an honor in business that is the fine gold of it; that reckons with every man justly; that loves light; that regards kindness and fairness more highly than goods or prices or profits."

Book Paper Ceiling Order

In what is described by the daily press as a surprise rollback, OPS released CPR 106 on December 14 which set dollars and cents ceilings on coated and uncoated book papers, envelopes and tablets.

The order which freezes prices for six basic grades and names differentials for directly related grades, freight allowances and zone differentials, is said to be a rollback of about 6 percent from CPR 22 levels. Inasmuch as some mills have been selling below the authorized level on a competitive market, the new ceilings are not a wide or general rollback, it is believed. Some change does appear to be effected, however.

To press time, this reporter is unable to confirm the judgment of the *Journal of Commerce* in this matter, inasmuch as producing mills are still studying the order, its phraseology, differentials for quantities, spot sales and contract. Spot sales, for instance, have a base period of January 25 to February 24, 1951. Differentials for contract sales have a base period of January 1 to June 24, 1950.

Waste Paper Market Shifts

Though there is no way of evading facts of over-supply and under-consumption in waste papers, a few shifts in pattern are worth noting.

Mixed is in greatly increased supply because of the mountain of holiday wrappings from the stores. In the local area, the weather offers no seasonal impediment to collections, and the packers are said to be paying for incineration of the poorer stuff.

So far as mill demand is concerned, dealers call it "spoon-fed." The price is $10 a ton delivered for No. 1 packing and as low as $7.

Old corrugated is in sloppy supply with distress prices of $10 reported.

Steady Buying of Good Packs

Trading in quality packings of all grades of waste papers has been at a steady level. Because of holiday closings and year-end stocktaking, however, mill buying currently is to immediate needs only. Heavy inventories and diminished operations do not encourage further stockpiling.

Strongest by far of the new cuts are the kraft items: new kraft envelope cuts, new bag waste, new corrugated cuts, both double kraft lined and 100 percent kraft. Bag waste is priced at $100 to $125, mill price, f.o.b. cars shipping points. Double-kraft lined of a super pack is sold up at $57.50, as also is 100 percent kraft at $65 to $80, domestic prices. These grades the mills find a preferential substitute to wet unbleached kraft pulps with a ceiling of $132.50.

Hard whites are somewhat easier, and though price levels are holding around $175/190, some hints of price cutting are circulated. Ledgers, tab cards, and other high grades are stable at close to November levels.

Export Market Competitive

No. 1 folded and overtissue news, new krafts, and hard white envelope cuts are wanted for export. This market, however, is now competitive with Swedish, Dutch and some German stuffs, and quality packings are essential.

Wastepaper Consumption Drops

Wastepaper consumption during the last five months has dropped substantially from the record-breaking pace of the first half of this year, says the Eastern Conservation Committee.

For the 11 months of 1951, consumption of 8,250,000 tons topped the previous high for a full year of 8,009,000 in 1947.

Per Capita Pressure For Collection

Per capita pressure for waste paper collection has been set up in a chart prepared and released by the Midwest Consumers of Waste Paper.

Comparing the midwest—where it is theoretically necessary to get 254 pounds from each person per year to meet demand—with the eastern section—where only 133 pounds per person per year is required—the problem lies in the fact that the midwestern mills normally consume more waste paper and must obtain it from less people.

Excluding the farm population, 1951's average per capita pressure for waste paper collection is stated as 145 pounds.

Increased Use of Cotton Linters

The textile industry has been notably dull for many months. Synthetics have cut deeply into the demand for and production of pure cottons. Thus competitive demand for a restricted supply is keeping the price of cuttings at ceiling levels of 21c for white shirts, plus 7½ percent dealer commission.

Buyer resistance to the dealer commission is reported, as also to the high-priced whites. Bleachable grades of prints, overalls, khakis, percales, etc., at 12 to 14 cents are well bought up. Fancy shirts and indigos at 10 cents, as well as other grades below that level, are sold up through January and are drawing gray market premiums.

Because of these conditions, and because cotton linters are available in quantity at a lower price, increased paper mill use of the linters is indicated. No recent figures on consumption are yet available, but industry sources say the increase in use is sizable.

Materials

Casein.—Pricewise, this market has eased from the highs of early Fall during the past several weeks. Demand is easy, particularly in view of inventory taking. It likewise is true that little activity has been reported in several weeks.

Argentine production is now approaching flush peak, though poor weather is reported to have supplied a check. In some minds, the Argentine Government's floor price of 30c will have to be shifted to meet competition coming from European countries particularly.

Of this group, Danish product is called a No. 1 quality at 30½ to 33 cents. The French casein is priced at 22 to 25, Dutch 28 to 32, New Zealand 33 to 34, all duty paid. New York wholesale prices of best quality, 30-mesh acid type Argentine is 35/36.

Domestic supply is described as ample for spotty demand at 35/37 for standard, 38½/41½ for premium.

—E.P.N.

Paperboard Production (Tons)*

	Dec. 8 1951	Dec. 1 1951	Dec. 9 1950
Production	201,888	192,085	243,297
New Orders	265,609	179,689	243,978
Unfilled Orders	428,921	365,363	721,122
% of Activity	86	80	106

* Source: National Paperboard Assn.

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News of the Week

Paper TRADE JOURNAL

Kimberly-Clark Obtains Control of Munising

Kimberly-Clark Corp. has acquired the controlling interest of Munising Paper Co., at $19.50 per share. The same amount is being offered for the remaining stock, it is reported. It is expected that a substantial modernization program will be started at Munising within the near future.

The property acquired by Kimberly-Clark comprises 75 acres of land, a pulp mill, a paper mill and a power plant. Munising employs about 550 workers. Net sales of the company this year are expected to reach $9 million.

Munising makes its own pulp, manufactures fine printing paper, bond, mimeograph, ledger and specialty paper. Kimberly-Clark is one of the leading manufacturers of cellulose wadding and converted products and of publication type magazine and book paper. Acquisition of the Munising facilities places Kimberly-Clark in the fine paper and specialty paper fields, the company said.

Kimberly-Clark said it plans to retain the same management of Munising, other than directors.

Weyerhaeuser Blast Caused By Blistered Tube

Weyerhaeuser Timber Co. officials stated they have established the cause of the November 30 explosion after long hours of poking through the ruins of a damaged sulphate-recovery furnace.

R. E. Baker, pulp-division manager, said a blistered tube in the floor of the pulp-plant furnace was to blame for the blast. The tube allowed water to seep into a bed of chemical which has a temperature of 1,500 degrees.

Baker said the water vaporized rapidly and caused the explosion which brought death to one man and injuries to seven others.

$1,000,000 Improvements At Cheboygan

An improvement program that will cost approximately $1 million is now underway at the paper mill at Cheboygan, Mich., J. J. Arnold, president and owner of Paper Corporation of America, announced recently.

The improvement program includes construction of a new 150-ton semi-chemical pulp mill and a new 50-ton per day ground wood mill, President Arnold stated.

Other improvements include lengthening wires, installing new suction presses, rope carriers, new winders, drum reels and adding enough driers so that each machine will have 44 driers. Additional driers were installed at the mill during the past week-end.

The schedule of improvements also includes increasing production on present machines which will produce 135 tons of paper a day when work on the machines is completed. The company also plans to make its own chemicals. At the present time the mill is employing 160 workers.

With prospects of obtaining a huge order to manufacture paper for buyers in Germany, Mr. Arnold plans to fly to that country to complete the sales negotiations. The paper mill president has been spending considerable time in Cheboygan recently in the interest of the improvement program.

N.Y.U. Spring Courses

New York University presents Paper and Graphic Arts Courses which will begin Monday, February 4th. Information about registration fees, and schedules is available at the Office of the Division of General Education, New York University, One Washington Square, New York 3.

The full spring schedule consists of 18 courses including the following four which should be of interest to the paper industry:

Basic Course in Printing Processes, Ink and Paper—Gerard Larocque

Survey Course in Pulp and Paper—Leonard Schlosser

Lithographic Processes and Materials—Richard F. Shaffer.

Package Design, A Basic Course—Carl Cobbledick

Newsprint Called Least-Profitable

MONTREAL—G. M. Hobart, president of Consolidated Paper Co., Ltd., says newsprint generally is found to be the least profitable product of the paper industry.

In a speech before members of the Engineering Institute of Canada, Hobart said newsprint, a "more or less standard product," accounts for 55 percent of the industry's output, compared with 66 percent before the war.

West Coast Pulp Mills To Develop Sulphur Source

Wyoming's third plant for recovery of sulphur from oil field gasses will be constructed near Powell by three Pacific Coast pulp and paper companies.

Joining in the project are Rayonier Inc., Crown Zellerbach Corporation and Soundview Pulp Co. Production of the $1,314,000 plant—an estimated 100 long tons per day—will be shipped to Washington and Oregon for use in the companies' mills. It is expected to be in operation by the end of 1952.

The Defense Production Administration has issued a certificate to the three companies under which 80 percent of the plant's cost may be written off in depreciation for tax purposes in five years. The plant will use hydrogen sulphide, or "sour gas," purchased from Seaboard Oil Co. of Delaware at a field near the Wyoming-Montana line.

The new plant will raise Wyoming's daily capacity of the element to around 500 long tons. The state's other plants are operated by Stanolind Oil and Gas Co. at a plant near Powell, and by Texas Gulf Sulphur Co., at Worland.

New Brown Company Pilot Plant

According to a recent report from Brown Company, Berlin, N. H., construction work will start shortly on a new and completely modern pulp pilot plant providing facilities by which pulp can be processed experimentally and commercially all the way from wood to commercial bales.

The "baby pulp plant" is considered to be the "Utopia" of its kind. It is a complete mill on a small scale.

The new plant will assist Brown Company's research staff in the development of new pulps for the dissolving and paper making fields. With the new equipment, Brown Company will prepare lots of pulp for field evaluation. It is to be constructed in the building adjacent to the Research and Development Department which now only houses the experimental paper machine. The work is being done by Brown Company personnel and is expected to be completed within five months, and when completed, will be under supervision of the Research and Development Department.

Elk Falls Plans Sulphate Mill

Newsprint Mill Nears Completion

Even before the completion of the newsprint unit of Elk Falls Company Limited's project at Duncan Bay in British Columbia, the company has announced intention to go ahead with a sulphate pulp mill. It has been known for some time that final plans embodied a chemical pulp mill, but an early execution of plans came as a surprise to most of the industry.

The announcement came from H. J. Mackin, president of Canadian Western Lumber Company which is a partner of Pacific Mills (Crown Zellerbach's Canadian subsidiary) in the ownership of the Elk Falls Company.

Present plans call for only a groundwood mill with sulphite pulp coming from the Ocean Falls mill of Pacific Mills. The sulphate unit is being added to give more complete utilization for species that do not lend themselves to sulphite or groundwood pulping. It can also use all sawmill waste from the operations of Canadian Western Lumber Company.

Value of the new unit has not been specified in any information released by the company, but it is thought that the additional investment involved would be approximately $20 million.

A very recent report from engineers in charge of the project indicates that the newsprint unit is now 55 percent completed. The 14,000-foot, 36-inch diameter pipe line, bringing process water from Quinsam and Campbell Rivers to the mill, is practically completed. Included in this water system is a 300,000 gallon main storage tank, and a 100,000 gallon fire protection tank already completed.

The line will be able to deliver 10 million gallons daily to the mill.

The huge 150-foot smoke stack, 12 feet in diameter, is now finished, but permanent boiler installations will be held over until spring. A temporary boiler has been installed for the winter.

As designs were completed and plans made before the full force of the defense program was felt, supplies and

Figure 1: Completed 150-foot high, 12-foot diameter smokestack towers behind workmen pouring the main beam which will support the upper floor above the screen room. Mill should be ready for preliminary runs in June.

Figure 2: Looking up through the walls over which 284" newsprint machine will be installed, one can notice the almost completed roof structure over the machine and finishing rooms at Duncan Bay, Vancouver Island.

Figure 3: Construction work at Elk Falls is now 55% completed. The 760 feet of building seen here is the grinder, screen, machine and finishing rooms. Roll storage is in building behind smokestack on left.

TWO-WAY PROTECTION AT INTERNATIONAL

G-E Limitamp provides high-voltage control for five pump motors totalling pumping capacity of 17,000 gallons a minute at N. Y. International Airport

This fast-acting control is expected to put motors of 210 and 350 horsepower into immediate action in case of fire at the airport. Designed for heavy duty; corrosion resistant, and containing no complicated mechanism, Limitamp requires only routine maintenance—is always ready to go into operation.

Chosen for its high interrupting capacity and comparatively low cost, pre-engineered and factory assembled G-E Limitamp guards equipment against the ravages of short-circuit currents. G-E developed EJ-2 fuses interrupt the circuit within ¼ cycle. This prevents expensive, and possibly dangerous shutdowns.

New compact design of controllers, many protection features, co-ordinated engineering on every job make this the high-voltage control (up to 4800 volts) you need for economy and protection. Write today for Bulletin GEA-5409A.

General Electric Company, Schenectady, N. Y.

GENERAL ELECTRIC

730-28

equipment, with a few exceptions, have been flowing to the mill regularly. About six cars arrive each month loaded with equipment; wharf and rail facilities were finished earlier in the project to permit cars to be unloaded from the barges by a landed locomotive and spotted conveniently near installation points. The 400-foot wharf has been dredged on the off-shore side to permit deep sea vessels to berth.

The B. C. Power Commission is progressing rapidly with its 130,000-volt substation and transmission line, and the project will be finished well before needed.

The main buildings, 760 feet long, are reaching upwards in great tiers of scaffolding. Twelve thousand yards of concrete have been poured for foundations, and a roof has been practically completed over the machine room and finishing room. Buildings include the grinder room (serviced by a 400-foot flume from the wood room where the grinder blocks are cut), the screen room, machine room, finishing room and roll storage. The latter was completed for warehouse purposes in mid-October, and is 480 feet in length.

Six groundwood units will be installed immediately with space for six more. Design throughout has been made with a view to doubling production without adding new buildings. One newsprint machine has been ordered. It will be 284 inches wide, rated at 2000 feet per minute and should have an output of about 240 tons daily.

Company officials feel that the mill should be ready for running-in around the first of June, 1952, but an opening ceremony will not be held until mid-September.

McLaurin-Jones Endows Scholarship

The McLaurin-Jones Company of Brookfield, Massachusetts has established a $500 annual scholarship for a student in the Paper Engineering Course at Lowell Textile Institute, Martin J. Lydon, Institute President, announced today.

The scholarship, first to be made available to the Paper Engineering Department by an individual company, will be awarded on the basis of rank achieved in the Scholastic Aptitude section of the College Entrance Board Examinations, on the applicant's high school record, and on the recommendations of high school principals.

James A. LeRoy of McLaurin-Jones Company stated that it will become available for the scholastic year 1952-1953 and will be renewed annually throughout the recipient's four years at Lowell Textile Institute provided a suitable scholastic record is maintained.

A.P.W.

ONLIWON

INDUSTRIAL
TOWELS
TISSUE

Columbia Cellulose Educational Program

Something unique for Prince Rupert's citizens in the form of night school classes is proposed by the Columbia Cellulose Co. Ltd. The company has suggested to the principal of the high school that a series of ten lectures be set up for community members who are interested in pulp mill operation.

If at least 25 registrations are filed the evening courses will begin. Lectures will be given by Ray Jones, mill manager, and other officers and technical men from Columbia Cellulose Co. Ltd.

PEOPLE

DEAN JOSEPH S. ILLICK has announced three new appointments to the professional staff of the Dept. of Pulp and Paper Manufacture at State University College of Forestry, Syracuse, N. Y. The combined faculty and research staff at the College now totals 99.

DONALD W. LIBBY of Orono, Me., has been named research associate and project leader on the College's hardwood pulping project that has resulted in development of the "chemi-groundwood" process. He succeeds Paul M. Schaffrath who resigned to join Oxford Paper Co., Rumford, Me.

Libby, University of Maine 1943, was formerly with Oswego Falls-Sealright Corp., Fulton, N. Y., and Solvay Process Division of Allied Chemical and Dye Corp. Syracuse.

HAROLD HICKSON of Bangor, Me., appointed technical assistant, will work with Libby and others on the pulping project, which is co-sponsored by a group of industries organized as Empire State Paper Research Associates, Inc.

A 1951 graduate of the University of Maine, Hickson previously worked for American Sales Book Co. and St. Regis Paper Co., Bucksport, Me.

DANIEL V. LENT of Auburn, N. Y., has been appointed instructor in the Dept. of Pulp and Paper Manufacture.

A 1948 graduate of the College of Forestry, Syracuse, Lent received his M. S. degree there in 1950. He was an assistant professor in the Chemistry Dept., Western Michigan College, Kalamazoo, during the 1950-51 school year.

R. W. Kenneth Ulm

DR. R. W. KENNETH ULM, formerly on the staff of Fiberboard Products Inc.'s Central Research Division, is now serving as Technical Director of the Company's San Joaquin Division pulp mill at East Antioch, California.

T. S. Markov

T. S. MARKOV, formerly at Fibreboard's mills in Northern California, is now Head Chemist at the Vernon (Los Angeles) Division paperboard mill of Fibreboard Products Inc.

E. G. BENNETT, general manager and vice-president, was elected president of the Escanaba Paper Company at a meeting of the board of directors of the Escanaba company held on Monday, December 3. E. H. NIEDERAUER, assistant manager, was elected vice-president.

Bennett joined the company in 1920 as an accountant, and then held successive positions during the past thirty years as auditor, assistant treasurer, treasurer, general manager and vice-president. In addition to his duties as president, he will continue in the capacity of general manager. The former president was the late M. N. Smith, Escanaba banker.

E. H. Niederauer joined the Mead Corporation at Chillicothe in 1929 as

(Continued on page 37)

GOVERNMENT GOSPEL

CPR 106—Coated and Uncoated Book Paper

The Office of Price Stabilization has issued a tailored regulation for book paper manufacturers which fixes dollars-and-cents ceilings on six basic pricing grades and provides methods for determining prices of other weights and grades in relation to the spelled out prices.

The new ceilings are prescribed in Ceiling Price Regulation 106, effective December 19, 1951. It supersedes the Manufacturers' General Ceiling Price Regulation CPR 22, and the General Ceiling Price Regulation, GCPR, for manufacturers of book paper. They are about 6 percent higher than the average of ceilings established on January 26, 1951, by the General Ceiling Price Regulation freeze.

From June, 1950, to January, 1951, prices charged by integrated mills rose from 7 to 10 percent and by non-integrated mills 10 to 20 percent. The larger increase by the latter reflected rising prices for woodpulp and other materials which they purchased as their raw materials. The new regulation will iron out these disparities.

Following are the ceilings on the six basic grades which apply to spot sales, f.o.b. mill, with lowest available carload rate of freight allowed to destination:

Grade and Specification	Quantity and Pack	Base Price per Cwt.
Coated Two Sides		
70 lb. #2 Enamel, 25x38—500	4 cases	$17.25
Trimmed 4 sides	Carload skids	16.30
45 lb. Enamel, 25x38—500	4 cases	13.05
Trimmed 4 sides	Carload skids	12.10
Uncoated		
55 lb. #2 Offset, 25x38—500	4 cases	14.80
Trimmed 4 sides	Carload skids	13.85
50 lb. A Grade English Finish, 25x38—500 Untrimmed	4 cases	14.05
	Carload skids	13.10
20 lb. Envelope, 17x22—500, Untrimmed	Carload skids	12.40
16 lb. Tablet, 17x22—500	Carload rolls	11.35

All freight allowances and zone differentials, in effect during the period January 25 to February 24, 1951, must be maintained.

The spelled out ceilings for the six basic grades also apply to "directly related grades," those grades which according to the manufacturer's past practice are equivalent to the basic pricing grades. Ceiling prices on "indirectly related grades" are determined by the differentials existing during the period January 25 to February 24, 1951.

All differentials effective during the base period with respect to different basis weights, quantities, finishing, embossing, packing, conditions of sale, terms, special services and other particulars, likewise must be maintained.

Ceilings for contract sales are determined by applying to the spelled out ceilings for the six basic pricing grades the differentials that existed between the spot or basic prices and the contract prices during the period January 1 to June 24, 1950.

Contract ceilings on indirectly related grades, and for variables with respect to weights, quantities, finish, packing, conditions of sale and other particulars are determined by employing the differentials existing from January 1 to June 24, 1950.

Market Wood Pulp Meeting

Supplies of chlorine, essential in the processing of chemical wood pulps, will become more available in the first quarter of 1952, the National Production Authority, U. S. Department of Commerce, reported today.

NPA told the Market Wood Pulp Industry Advisory Committee that present production of chlorine is about 6,550 tons per day. New facilities, which are expected to be in production by the year's end, will increase this amount by about 740 tons daily. NPA estimates that the greatest part of the chlorine expansion program will take place in 1952, bringing into production another 1800 tons daily. By the end of 1955, supply and demand will be in approximate balance, NPA said.

NPA reported on the supply situation of other chemicals, especially sulfur and alum, used in making pulp, paper and paperboard. Both are in short supply. NPA expects to issue an order limiting the use of sulfur, sulfuric acid and carbon bisulfide before Jan. 1. A 10 percent reduction in the use of alum to conserve that chemical may be ordered at the same time, NPA said.

The committee heard NPA report that certificates of necessity for expansion of production facilities of pulp, paper and paper board, involving a total proposed investment of $500,000,000 have been granted by the Defense Production Administration. When and if this expansion materializes, increased annual production is expected as follows:

Wood pulp	2,561,000 tons
Paper	428,000 "
Paper Board	1,483,000 "

Estimated 1951 production of wood pulp is about 16,500,000 tons.

Production of both paper and paper board will aggregate about 26,500,000 tons, NPA said.

Pending applications for rapid tax amortization certificates involve an expenditure of another $500,000,000, NPA said. These new proposed facilities would raise annual output still further as follows:

Wood pulp	1,669,000 tons
Paper	835,000 "
Paper Board	1,050,000 "

The committee reported encountering no difficulties in operating under the Controlled Materials Plan. NPA warned that materials for maintenance, operating and repair would be "tight" during the first quarter of 1952, but nonetheless there would be sufficient quantities of such materials to keep mills operating.

NPA further reported that certain claimant agencies have asked for additional allotments of pulps for export to friendly foreign governments. Third quarter allocations for this purpose amounted to 7,000 tons of dissolving pulps, 7,000 tons of white pulps and 25,000 tons of unbleached kraft pulps. NPA has granted increases in these allotments for the fourth quarter (10,000 tons of dissolving pulps, 30,000 tons of unbleached kraft pulps, no increase in white pulps), but first quarter 1952 allotments will be the same as during the third quarter of 1951. The committee reported an anticipated increase in the usage of unbleached kraft pulps in the first quarter. It recommended that NPA be conservative in making foreign allotments of that grade.

An amendment to M-72 (chemical wood pulp order) is under consideration because of certain imbalances in the supply of unbleached kraft pulps, NPA said. The committee raised no objections to the proposed amendment.

A. Murray Howe, of NPA's Pulp, Paper and Paper Board Division, presided.

These committee members attended: A. E. Maves, Continental Paper Co., Ridgefield Park, N. J.; Allen F. Horton, Curtis Paper Co., Newark, Delaware; Hugo H. Hanson, W. C. Hamilton & Sons, Miquon, Pa.; Aubrey K. Nicholson, Hollingsworth and Vose Co., East Walpole, Mass.; W. B. Zimmerman, Howard Paper Mills, Inc., Franklin, Ohio; R. C. Hagey, Ohio Boxboard Co., Rittman, Ohio; H. S. Donald, Standard Paper Manufacturing Co., Richmond, Va.

Public Feeding Meeting

The Public Feeding Industry Advisory Committee, at its first meeting

(Continued on page 39)

Meeting the Challenge of Maintenance and Lost Time in the Paper Mill

J. R. Curtis
Chief Engineer Scott Paper Co.

The Challenge of Lost Time

So much has been written on Mainenance procedures and techniques that it is difficult to uncover an original theme or idea for discussion. Mainenance, like Death and Taxes, is something we cannot escape. However, we can exercise a greater control over Maintenance than we can over the other matters, and it is hoped that this discussion will suggest to you means whereby you may improve your control over your Maintenance operations.

The subject of this paper is "Meeting the Challenge of Maintenance and Lost Time in the Paper Mill". The challenge of lost time may be a little obscure at first; so let us consider briefly several generally accepted axioms:

1. Lost machine time means lost production.

2. No machine will operate for ever without lost time for maintenance and repairs.

3. It is impossible to accurately predict paper machine behavior.

Lost time on a paper machine is lost production, and lost production means reduced profits and less opportunity to distribute overhead and fixed costs. There is nothing more pathetic than the sight of a multi-million dollar paper machine needlessly lying idle; and there is nothing more exaserating and frustrating than a machine which refuses to produce steadily for reasonable periods of time.

Any machine with moving parts will eventually require repairs and replacements which cannot be made on-the-run. Therefore, machine shutdowns are a "necessary evil" as far as papermaking is concerned.

On occasions which are too frequent, paper machines have a most annoying habit of scheduling their own shutdowns. The man who spoke of the "perversity of inanimate objects" must have been a Paper Mill Superintendent speaking of one of his machines. In an attempt to squeeze a few more hours out of a felt or wire, we often run into a situation where the machine refuses to cooperate any longer.

When confronted with the above conditions, many people succumb to the feeling that lost time for maintenance is inevitable, and therefore they make no effort to do anything about it. Until a few years ago our operating personnel more or less accepted this theory. For years the "maintenance tail" tended to wag the "production dog." Maintenance men felt strongly that equipment to be repaired should be turned over to them unconditionally, to be returned to the operators only after the job had been completed to the Shop's satisfaction. Theoretically this procedure was correct; however, it resulted in the papermakers' looking on down time for maintenance as a major component of mill operations and whether the shutdown required 4 or 14 hours, it was accepted as being inevitable and no attempt was made to change the situation.

As machine speeds have increased, so have maintenance requirements, so have production budgets and so has the value of machine time. Management has become increasingly unwilling to accept anything which reduces production or increases costs.

The challenge of lost time is therefore double-barreled. There is a challenge to:

1. Process unscheduled shutdowns more efficiently.
2. Make scheduled shutdowns more productive.

There is a distinct challenge to the machine operators to schedule shutdowns in such a way that maintenance work can be done when the Mainenance forces are prepared—not before. The scheduling of shutdowns is at best a gamble involving both luck and odds. The longer you run clothing to stretch felt life, the greater are the odds against you as far as shutting down on a predetermined date is concerned. Predicting machine shutdowns is an operating rather than a maintenance problem, however; for which reason it will not be discussed here any further. Knowing that not all shutdowns can be accurately scheduled, the challenge to the Maintenance Department is that of being so well prepared at all times as to be able to handle an unscheduled shutdown with a minimum of confusion and lost time.

The second challenge is that of eliminating the word "lost" from the expression, "lost time". Machine "down time" is a necessary evil which we cannot avoid; however it will only be "lost" time if it is non-productive. There is a challenge to make every minute of down time as productive from a maintenance standpoint as is each minute of normal operation from a tonnage point of view.

The Chester Plant

Before discussing the methods by which we have endeavored to meet these challenges, it would be well to outline briefly our plant operations, since our procedures certainly cannot be expected to find general application throughout the industry.

We operate in the Chester Plant 10 paper machines, 9 of which are the Yankee type, using both wet and pick-up felts. The mill operates 24 hours a day, 7 days a week and 360-plus days a year. Practically speaking, this is continuous operation. Our machine shutdowns occur at the following times:

1. General plant shutdown at Christmas, Labor Day, etc., totaling about four days per year.
2. Major machine overhaul—about once per year per machine—one week duration.
3. Clothing Changes—about once per month per machine.
4. Breakdowns of unscheduled nature.
5. Wire and wet felt changes—as required.

From a maintenance standpoint only two of these are important. On the major machine overhaul, requiring about seven days, all engineering alterations and major maintenance projects are completed. These define the length of shutdown, and all secondary maintenance projects, roll changes and felt installations are incidental.

On "Clothing Changes" the controlling projects are roll changes and clothing; general repairs are secondary. The date of this shutdown is controlled by the life of the felts and the condition of the rolls. On a Clothing Change all maintenance needed to keep the machine in good running order is performed but is so arranged, if at all possible, that it does not delay the startup. This type of shutdown constitutes the greater portion of all down time.

During both the Clothing Change and the Major Machine Overhaul every hour saved means another hour

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Presented at the 25th Anniversary Meeting of the Pennsylvania-Delaware, New Jersey Division of The American Pulp and Paper Mill Superintendents Assn., held at Pocono Manor, Pa.

SOLID STAINLESS STEEL

is used throughout this new spherical digester

Specifications of this digester

Inside diameter	16 feet
Working pressure	175 psi
Test pressure	350 psi
Shell plates	5/8 inch
Heads	5/8 inch
Manhole cover	1 1/16 inch
Jacket	16 gage
Rotation speed	1/2 rpm
Dry capacity	25,750 pounds

Fabricated by The Bigge Boiler Works Company, Akron, Ohio, this Stainless Steel spherical digester was recently put into service by the West Virginia Pulp and Paper Company. It was erected and welded at the site.

Looking through the manhole cover of this Bigge spherical digester, you can see part of the charge of 25,750 pounds of hardwood chips. Both the interior shell and exterior jacket, separated by 2½ inches of insulation, are Stainless Steel.

● Both the interior shell and exterior jacket of this new spherical semi-chemical pulp digester have been designed for maximum service life with solid Stainless Steel.

This digester is part of a full-scale commercial plant being constructed by West Virginia Pulp and Paper Company at Mechanicville, N. Y. Future plans call for additional digesters. Short-fibred hardwoods will be reduced to pulp by the neutral sulphite semi-chemical process.

The firm selected Stainless Steel for this digester on the basis of more than ten years' experience with this metal in digester equipment.

Stainless Steel's exceptional resistance to corrosion recommends it highly for this type of application. We'll welcome inquiries from you or your fabricator and will be glad to recommend suitable grades of perfected, service-tested U·S·S Stainless Steel for this type of equipment.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND · COLUMBIA STEEL COMPANY, SAN FRANCISCO
NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM · UNITED STATES STEEL COMPANY, PITTSBURGH
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

1-1951

UNITED STATES STEEL

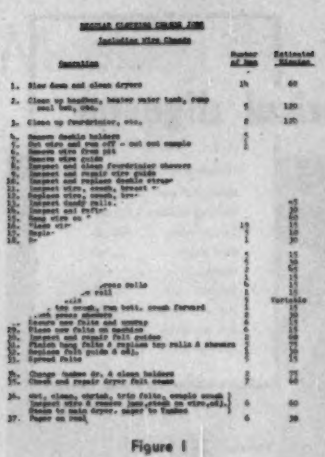


Figure 1

of production. For this reason we have confined our initial efforts to improving the efficiency of these operations. If your mill operates on a similar basis, the following discussion could apply. If, however, you shut down on weekends and do maintenance work at that time, the results obtainable will be less significant.

The Maintenance Problem

Before attempting to state the maintenance problem, let us look for a moment at the groups engaged in a Clothing Change. These are as follows: 1. Mechanics; 2. Pipe Fitters 3. Electricians; 4. Riggers; 5. Instrument mechanics; 6. Outside Contractors; 7. Paper Mill Crews; 8. Cleaners; 9. Pulp Preparation; 10. Technical Control; 11. Engineering.

Each group has its own interests and assignments, and a large paper machine is frequently a mighty small arena for all necessary activities. A typical, unprepared shutdown might find the Cleaners blowing down paper dust where Mechanics were trying to open a bearing. The Machine Crew might be washing up the Fourdrinier while Pipe Fitters were working on a shower line. We have found that nothing creates better working relations between two departments than to have one blow dust or turn a water hose on the other. Also, the Rigging Crew might find the Construction Department tying up the crane with some new equipment just when rolls should be changed requiring this equipment. And the Paper Machine Crew, when ready to run on a dryer felt, would be most disconcerted to find that the Electricians had the main generator down for cleaning. These are only a few of hundreds of conflicts which can and do occur ot prolong shutdowns. Most of the responsibility for prolonged shutdowns was thought to lie with the Maintenance Department because of the over-emphasis placed on past impressions and traditions, and on the part they played in many of the controversies which developed.

Clothing Change Study

As a result of these conflicts, a concentrated study was made of 40 Clothing Changes in the Chester Plant to determine the real source of the trouble. These studies indicated to the surprise of all, including the Maintenance Department, that in 37 out of the 40 Clothing Changes covered, the Paper Machine Crews and the Riggers controlled the time of machine startup—not the Maintenance Groups. This removed the immediate pressure from the Maintenance Group and placed it on the Paper Mill and Rigging Crews. These studies further indicated that, with proper planning, proper organization and a coordinated effort, a reduction of 34 percent in overall Clothing Change down time could be realized. If your mill operates under comparable conditions, it is very probable that you too can reduce your down time by one-third.

In order to realize these savings, several corrective measures were required:

1. Provide simple methods for processing strictly routine and repetitive jobs.
2. Provide a realistic schedule to eliminate interferences on Maintenance work projects.
3. Provide an organization to coordinate *all* work involved in the shutdown.

All operations involve four factors: Men, Materials, Tools, Time.

The proper manipulation of all four factors is essential to the successful completion of all maintenance operations. The key to their successful use is "preparedness."

Men must be prepared by proper training and briefing prior to the shutdown.

Materials must be prepared by procurement and prefabrication.

Tools must be available when and where they are to be used.

Time must be allocated by scheduling prior to the shutdown.

Most of the repetitive jobs are performed by the machine crew and include such items as the inspection of guides, the renewal of wire roll doctors, the alignment of Fourdrinier rolls and deflectors, etc. Here confusion was usually not due to a lack of knowledge of *how* to do a job but *when* to do it. Delays were the result of a lack of standard routines, standard times and standard crews. Further inefficiencies developed through split supervision, reliance on memory, contradictory verbal instructions, failures to spot belts for splicing and dryer man-hole covers for internal inspections, etc.

The delays were usually caused by the necessity for assembling a team for each job at the last minute after a forgotten job was remembered or when someone complained about being held up. Further complications developed when machine crews changed in the middle of a Clothing Change without propertly transmitting to the new crews a full report on project status.

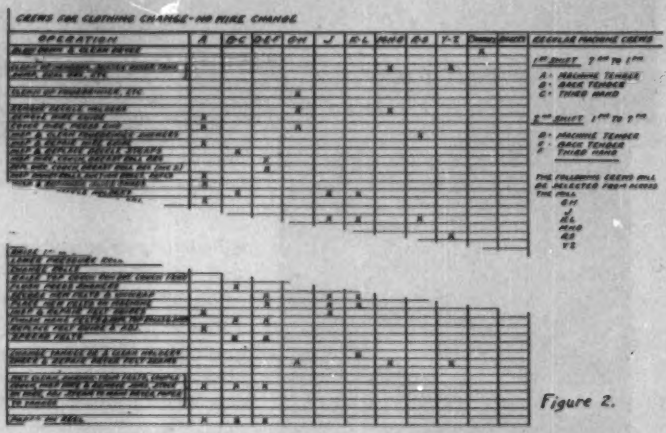
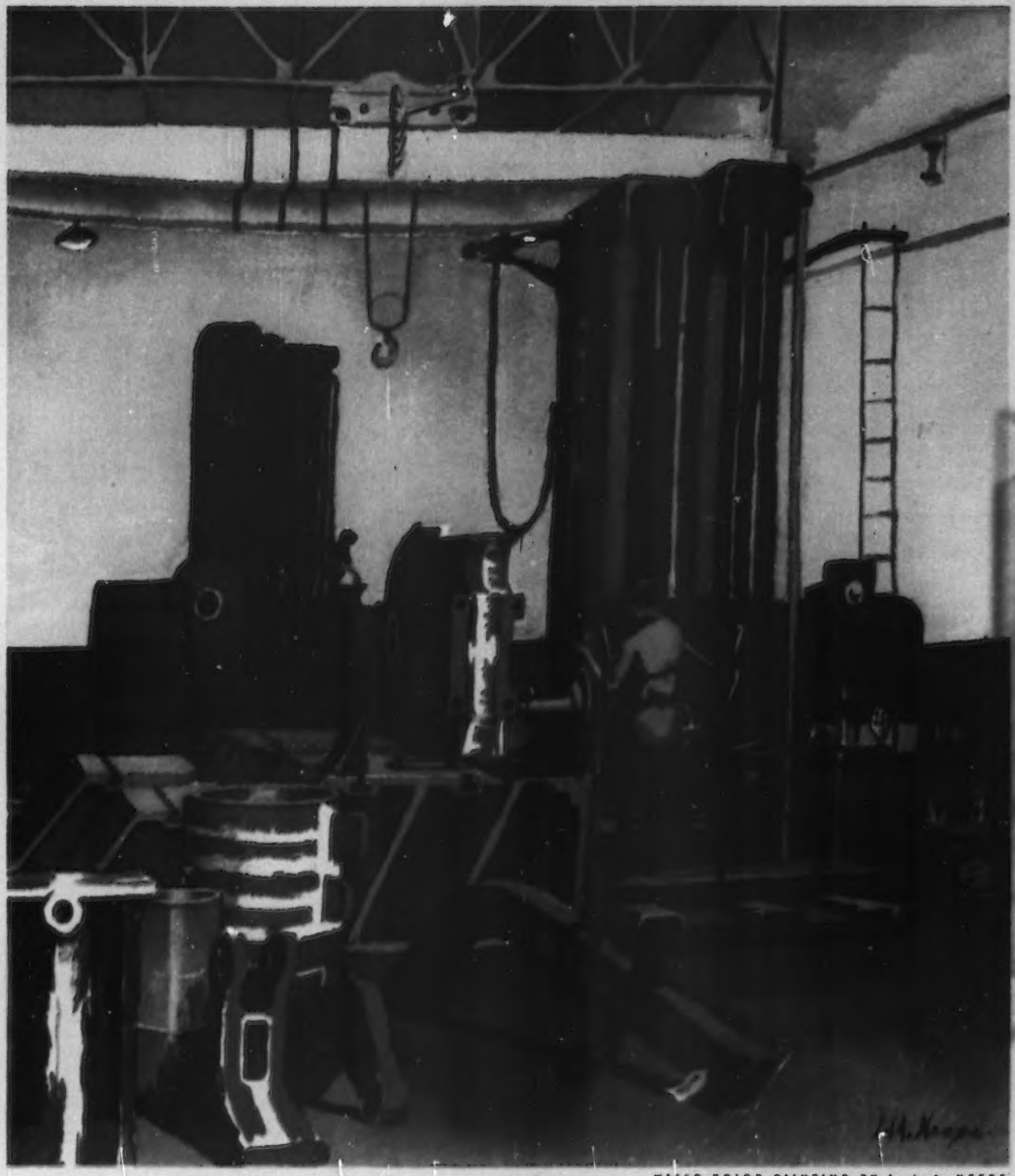


Figure 2.

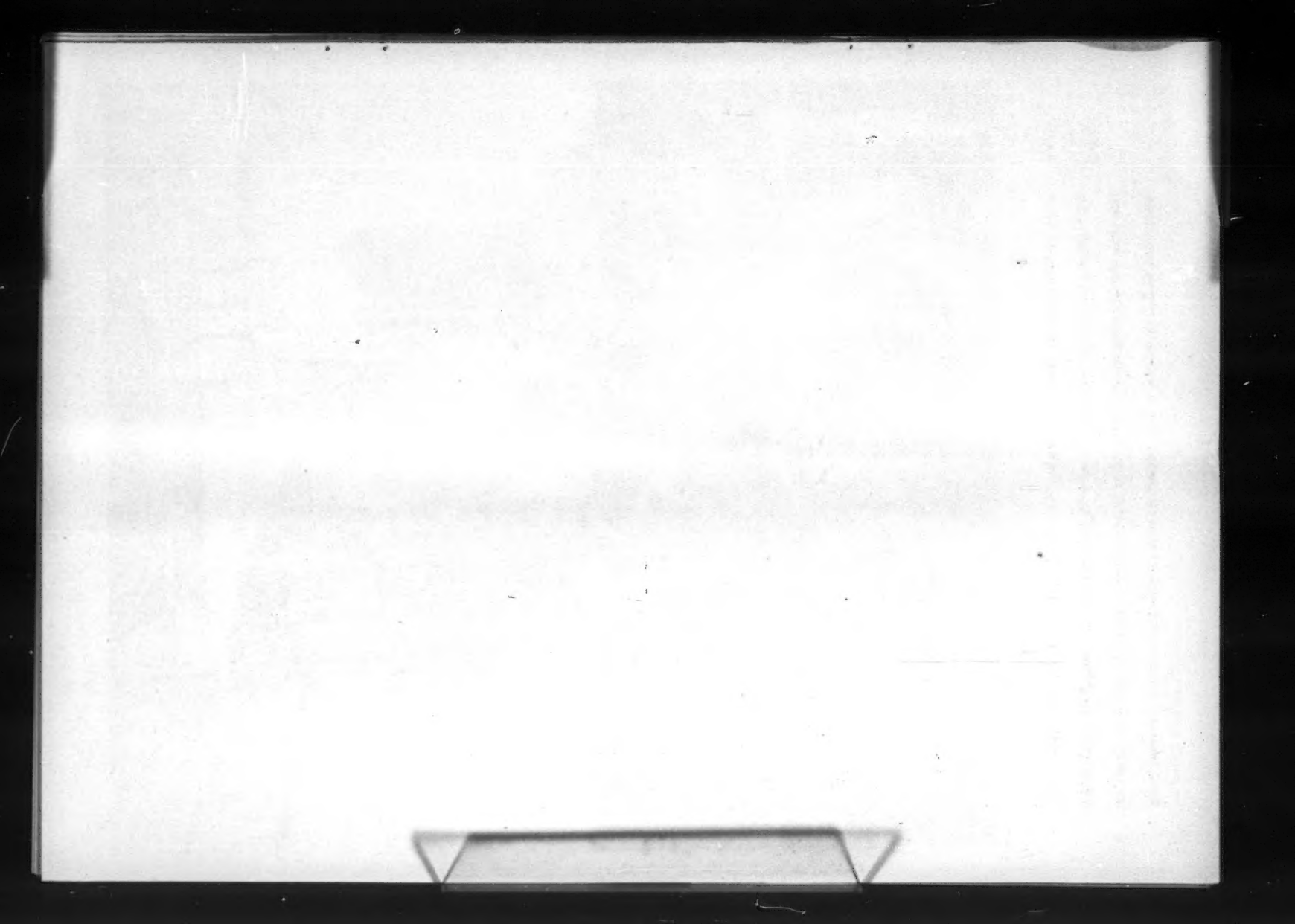
To accomplish the first objective, that of handling routine jobs, a list of repetitive operations was devloped and checked with Paper Mill Supervision *(Figure 1)*. Adequate time allowances were assigned for the completion of each project, but these were kept realistic.

At the same time a chart indicating the number and source of men from other machines to be used on a Clothing Change was prepared. Since regular Machine Crews know their own machines best, these groups were assigned the more important jobs. The supporting crews, taken from ma-



WATER COLOR PAINTING BY L. J. A. REESE

QUALITY MACHINING at Beloit Iron Works, Beloit, Wisconsin—part of the process of building high-speed, high-production paper machines. Huge horizontal boring, drilling and milling machines shown above are among the many types used in specialized operations. Precision equipment, skilled operators, trained inspectors help to hold close tolerances on every part.



chines across the mill, were assigned work projects common to all machines. These men are assigned jobs as indicated in *Figure 2.*

Certain miscellaneous data was also necessary in order to complete the schedules. This involved the personnel and time requirements for various other supporting operations as listed in *Figure 3.*

Standard Times for Miscellaneous Elements
(Cleaning, Cartage Time, etc.)

	No. Men	Estimated Time
Run crane from press to calenders to reel.	2	30
Place and remove calender from rack (Initial)	2	15
Raise or lower top of calender frame (Initial)	2	5
Prepare calender for roll change (Initial)	4	
Reassemble calender after roll change (Initial)		
Reassemble calender after top roll [illegible]		
Prepare calender for [illegible]		
Sweeper [illegible]		45
[illegible]	4	30
[illegible] remove textile)	2	180
	12	120
change rolls on calenders (remove and replace)	2	36/roll
Convey rolls to and from roll storage (Internal time)	3	18/roll
Remove and replace dandy rolls (Include transport)	2	15/roll
Remove and replace textile bar (Include transport)	2	5/bar
Remove and replace deflectors (Include transport)	2	5/deflr.

Note- Do not need crane for dandy rolls.

Figure 3

During the development of schedules to cover the repetitive jobs on a Clothing Change, it became apparent that a standard sequence of operations could be applied to every Clothing Change, the only variable factor being the roll changing time, which depended on the number of rolls involved. Recognizing that manhours are relatively unimportant when balanced against the cost of machine down time, we scheduled as many operations as practical to be performed simultaneously, thus tending to reduce machine down time.

The final schedules, as prepared by this method, include time allowances for roll changes. These necessarily vary from one machine to another, and where wide variations exist, individual schedules are necessary. In other instances one schedule may cover a group of machines.

In our case it was necessary to prepare some 57 basic schedules for Clothing Changes with an associated wire change, and 45 more to cover Clothing Changes without a wire change. This, at first glance, would appear to be an unjustifiably great amount of work; however, only relatively minor changes are involved from one schedule to the next. A master tracing was prepared in the Engineering Department and from this a large number of duplicate tracings were printed. Each individual master schedule was prepared on such a tracing and from these we made black and white prints as required.

The completed schedules include all routine operations, and a typical example is illustrated in *Figure 4.* This chart covers a 9-roll change with a wire change and is one of our longest shutdowns for routine work.

Since the roll changes are usually the controlling jobs, there is a general progression of work starting with the washup and release of the press section so that the riggers can start changing rolls at the earliest possible moment. The operating schedules are so arranged as to eliminate interferences during washup, blow-down and crane usage. Such scheduling necessarily requires that each man be trained thoroughly in the duties he is to perform and that he be properly briefed by his supervisor prior to the shutdown. On-the-job training by supervisors takes care of the former, while the posting of work schedules prior to the Clothing Change informs each man as to his exact duties on the shutdown. One of these "Employee Schedules" is shown in *Figure 5.*

The Work Meeting

Basic schedules covering routine work have been prepared, and into these must now be worked the special maintenance projects and enginering jobs. This is done at a Work Meeting, which normally precedes the shutdown by a week. This meeting is attended by supervisors representing all trades involved in the coming Clothing Change. It is essential at this time that most of the orders for maintenance work be on hand. In the past one of the major complicating factors on a Clothing Change was the receipt of a great batch of Work Orders immediately prior to, and also during, the Clothing Change. This completely voided all possibilities of prior examination and planning.

The first step at the Work Meeting is to determine the controlling job, or jobs. If the roll changes are controlling, as will be the case in 90 percent of the Clothing Changes, it is necessary only to work all maintenance jobs into the overall schedule as already established. In other cases a maintenance project may be the controlling job. By increasing the work force, scheduling continuous project coverage, prefabrication and other means, the time requirements for this job are reduced to a minimum.

In this manner a master schedule is arranged, including the basic schedule and all maintenance work projects.

Between the Work Meeting and the shutdown a number of other jobs will be added, but these should be kept to a minimum. In some cases a second meeting may be required prior to the shutdown to properly schedule all work to the satisfaction of all groups concerned.

The Maintenance Control Center

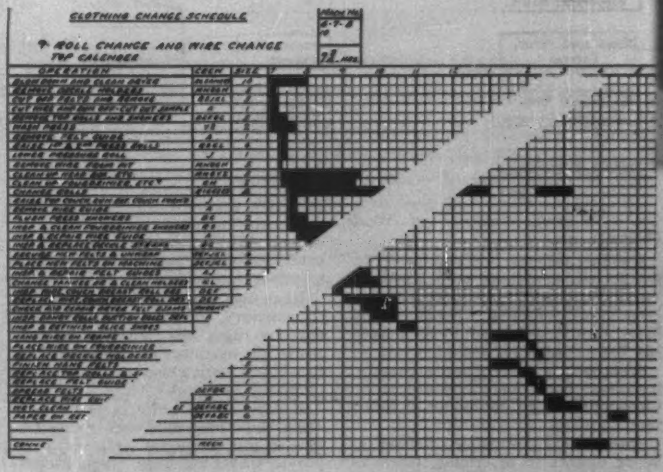
So far we have discussed only the scheduling of work to produce improved efficiency of shutdown operations. In order to prepare and execute such schedules, it is necessary to have an adequate organization.

Our original organization was rather standard as shown in *Figure 6A.*

A quick examination of the organization shows it to be strictly an operating group. Planning and control were possible only by line supervisors, who were already overloaded with job details. It was impossible for this group to devote sufficient time to planning to establish detailed work schedules. It was also apparent to us that operating men did not always make the best planners, since their main objective was that of producing.

For these reasons we established an independent group, called the Maintenance Control Center, which reports directly to the Plant Engineer. It was felt that this group should not be tied directly to the Maintenance Department, whose activities it controls, since

Figure 4 Below



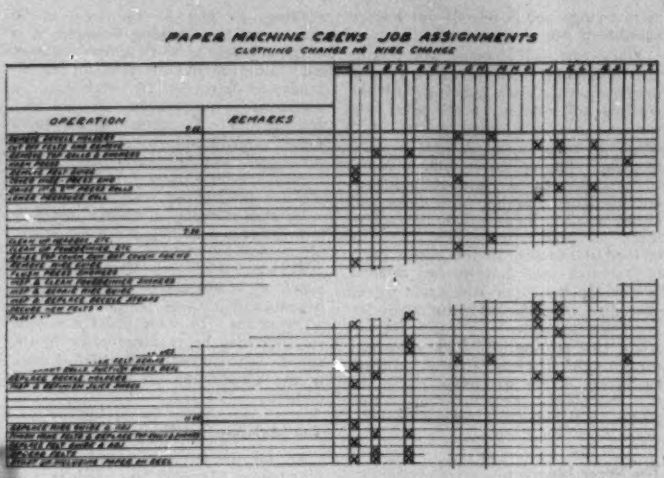


Figure 5

this control is one of suggestion and recommendation and not one of line authority. The Control Center has no direct jurisdiction over any member of the Maintenance Department.

The Control Center is headed by a Maintenance Planning Engineer who reports to the Plant Engineer. *(See Figure 6B)*

Very briefly, the duties of the men in the Control Center are:

Maintenance Planning Engineer — coordinates all planning operations of

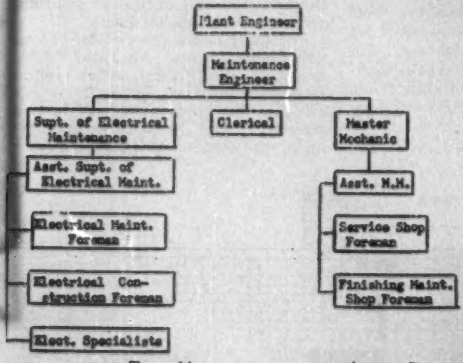


Figure 6A

Control Center, chairman of Work Meetings, etc.

Clothing Change Coordinator — prepares Clothing Change work schedules, briefs supervisors on duties and follows actual Clothing Change on the floor. In a 10-machine mill these average two to three per week.

Maintenance Technician — compiles technical data and substitutes for Clothing Change Coordinator as necessary.

Maintenance Expediter—follows all Work Orders to determine nature of work and expedites delivery of material, tools, etc., for Clothing Change.

Actually, each man has many more specific duties, and in addition must be able to substitute for any other man in the group if necessary.

Processing of Work Orders

Let us now see how a Work Order is handled. This will indicate how the various groups are coordinated to produce an efficient shutdown.

All Work Orders are forwarded directly to the Control Center where they are reviewed by the Planning Engineer. In many cases it is necessary to review the job in the field with the author to determine exactly what is required. At this time an estimate of time, manpower, material and tool requirements is made.

Next, the Work Order is rewritten, if necessary, to clarify it. Many orders are vague and confusing as written by the operators and must be clarified before assignment to the shops if time is to be saved.

A copy of the order is posted in a visual card file under one of the following job categories and under its proper trade, viz. Pipe Shop, Electrical, Service Shop, etc. 1. On-the-Run; 2. Wire or Wet Felt Change; 3. Clothing Change; 4. Major Machine Overhaul; 5. General Plant Shutdown.

Another copy of the order is then passed to the Maintenance Department for execution.

Prior to the shutdown the Maintenance Expediter constantly checks the availability of materials to insure their readiness for the shutdown. At the Work Meeting it is necessary only to open the visual file and pick out the work to be done. If materials are going to be available on time, these jobs are then entered on the master work schedule as described before.

The day before the shutdown the work to be done is reviewed with the supervisor responsible for its execution; he is thus familiar with each Work Order before the Clothing Change occurs.

On the day of the shutdown the Shop Foreman is responsible for the satisfactory completion of all Work Orders, and he reports progress and job completions to the Clothing Change Coordinator who records them on the master schedule. This allows the Coordinator to follow the progress of the shutdown and eliminate conflicts, should they develop. It also permits him to eliminate some work, if desirable to meet a more reasonable start-up time, or add projects if the overall shutdown is delayed by the controlling job.

It should be emphasized at this time that no maintenance work is canceled or slighted in any way in order to

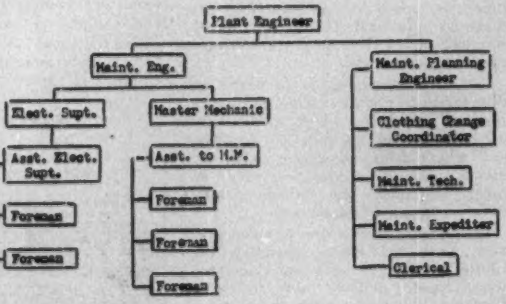
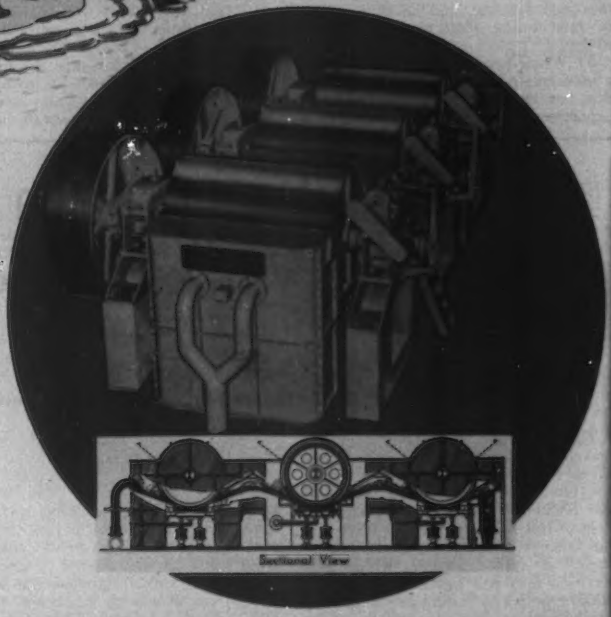


Figure 6B

hold to the schedule. The schedule serves only as a guide and a goal—not a firm commitment. The Coordinator takes notes as to reasons for delays and interferences and prepares a final report on each shutdown. Each cause for delay is studied and an attempt is made to correct the situation on subsequent shutdowns.

Also, no pressure is put on the individual workers to increase their pace. Foremen maintain a normal work rate entirely consistent with safety. All results are obtained by proper scheduling

lowest maintenance cost!



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to maintain continuous and simultaneous operations — not by pressure on men or slighting of jobs.

Results of Program

The institution of the procedure discussed has resulted in a number of positive gains:

1) The Maintenance Department and the Control Center are now in a position to handle breakdowns and unscheduled Clothing Changes with a minimum of confusion, since all Work Orders are aligned in a simple visual file and a master schedule is on hand a number of days prior to the shutdown. On a breakdown these may be pulled out on a moment's notice, and the work may be followed readily.

2) Everyone knows his job due to thorough briefing, and no time is lost in determining what to do and when to do it.

3) Work progresses smoothly with a minimum of conflicts and confusion; this has resulted in greatly improved departmental morale.

4) Most important of all, the actual Clothing Change time has been reduced 34 percent, which has resulted in direct monetary savings.

Summary

By way of summary I would like first to emphasize the importance of "Preparedness" in any operation. A special Control Center is required to properly prepare for shutdowns. Do not expect your regular Shop Foremen to do both planning and operations. Whether your control group consists of one man or fifty, "Preparedness" is still the key to the successful completion of any project—the key which will enable you to meet he challenge of maintenance and lost time.

All operations involve Men, Materials, Tools and Time. Prepare your men by proper training and briefing ahead of time. Prepare Materials by prefabrication. Make sure all necessary tools and equipment are available when and where they are needed. Properly schedule all operations to eliminate interferences; this will require the preparation of schedules based on standard job sequences as described earlier.

In scheduling your shutdowns, follow three simple rules: first, determine the basic or controlling job; second, reduce the time requirements for controlling jobs to a minimum by increasing manpower, providing continuous coverage—around the clock if necessary—and prefabrication; third, work all secondary jobs into this established time limit by using as many extra personnel as necessary.

In conclusion I must warn you that this whole approach must be flexible: as your operations change so must you change your planning accordingly. Also, this system cannot be installed and then forgotten; problems and difficulties arise continually which must be faced and solved. Only when you and your organization learn to believe in planning and preparedness as the key to successful maintenance operations will such a system become fully effective.

Recovery Evaporation and Burning of Sulphite Waste Liquor in Sweden*

Part I

Bengt Brunes

Civil Engineer, Swedish Steam Users Assn., Stockholm, Sweden

The technique of recovery, evaporation and burning of sulphite waste liquor has made great progress in the last ten years. This aspect of cellulose technique may now be considered to have left the experimental stage and has become a factor of some importance. A factor, indeed, which will serve to decrease production costs of sulphite pulp and help to minimize contamination in the waters receiving waste liquors.

This does not mean, however, that the problem of waste sulphite liquor has been entirely solved. There remain several serious difficulties and in this case—as in all technical development—it is to be hoped that more progress will be made from an economic viewpoint.

With one exception, Swedish sulphite pulp mills make use of calcium as a base for their cooking acid so that this report is concerned only with conditions in calcium base sulphite mills. The preparation of cooking acid from sodium or ammonia, which as a rule, simplifies and reduces the cost of utilization, is usually more expensive in most mills than using limestone.

Sulphite waste liquor is the most important Swedish raw material for alcohol production. The necessity for recovering as much of this waste liquor as possible in cooking installations became imperative during the recent World War, when great demands were made on the alcohol production of sulphite mills. Experiments were carried out at a large number of mills and Nevrell *(1)* and Ulfsparre *(2)* among others have explained the essential requirements for a long term recovery of waste sulphite liquor.

The solving of the problems involved in the construction of technical evaporation apparatus has been led by two firms, Rosenblads Patenter and Raméns Patenter, who have constructed and delivered practically all the Swedish waste sulphite liquor evaporation installations.

The burning of the waste sulphite liquor has, in this respect, been the "fly in the ointment" and has been virtually regarded as a necessary evil. The technique of burning has made great strides thanks to a special furnace constructed and erected by Lodd-by Sulphite Factory.

A committee working within the framework of CCL — The Sulphite Waste Liquor Evaporation Committee with Director Ulfsparre as chairman—has made scientific studies of many of the problems involved in connection with the utilization of the waste liquor and has accumulated and filed the results of its practical experience.

Recovery of Sulphite Waste Liquor

Mention need scarcely be made of the fact that the recovery from the sulphite cook of the largest possible amount of dissolved solids with the highest possible degree of dryness increases the yield of waste liquor from an economic viewpoint.

The amount of solid matter going into solution from the wood during the sulphite cook is determined by the conditions of cooking and is also very dependent on the type of cellulose which is being produced. The possibility of influencing the amount of solid matter without affecting the quality of the pulp is almost negligible. Generally speaking it may be reckoned that with a strong pulp (Roe 7) and a pulp yield of 52 percent calculated on the dry wood material, 1000 to 1100 Kg. of solid matter is obtained per metric ton of 90 percent pulp in the digester liquor. Corresponding figures show 1350 to 1450 Kg. per metric ton of 90 percent pulp in rayon pulp (Roe 1) and a yield of bleached finished product corresponds to 42 percent.

* Presented at the 40th Annual Meeting of Ekono at Helsingfors.

Note: References will be found at end of Part II.

Attempts have been made in several factories to increase the amount of solid substance in the digester liquor in the finished sulphite cook by returnnig the waste liquor to the acid system. This research has been continued in the Central Laboratory of the Cellulose Industry in Stockholm *(3,4)* and should prove suitable in certain cases, whereby a greatly improved state of affairs is initially obtained for the utilization of waste liquor as compared with the normal procedure in the sulphite mill.

With certain qualities of pulp, cooking is carried out with a relative small amount of acid, this factor contributing to a greater degree of dryness in the digester liquor.

The question is one of obtaining, by one way or another, the greatest possible amount of solid matter from the digester liquor from the finished sulphite cook with the least possible dilution with water. The simplest procedure is to allow the liquor to run through a strainer but this method usually gives less than 50 percent yield. Attempts have been made to improve the result by forcing the liquor out of the digester with the aid of compressed air but only an insignificant increase in the dry substance yield has been obtained. The use of a press has also been suggested after the contents of the digester have transferred to a suitable container.

The most usual procedure, however, is to displace the liquor from the finished cook with weak liquor or water.

Through continuous measurement of the amount of liquor and its degree of dryness curves may be drawn showing the displacement process as shown in *Figure 1.* By substance yield (U percent) is meant the ratio between the amount of recovered solids and the amount of solid matter in the sulphite cook's digester liquor. Concentration Ratio (integral) shows the ratio between the dry content of the resultant liquor recovered and the dry content of digester liquor. Concentration Ratio (differential) is the dry content of a small sample of liquor taken during the recovery process and the dry content of the digester liquor.

Since no displacement medium is available, which is neither miscible with, nor soluble in the liquor, displacement curves are obtained of the type shown in *Figure 1,* where the dry content gradually decreases. The withdrawal of liquor for an alcohol plant or evaporation plant should terminate where the economic limit for the dry content of the liquor is reached. The economic boundary is defined as that where the value of the product just covers the production cost. The economic limit for the recovery of sulphite waste liquor is variable depending on the evaporation system and other factors. If the waste liquor is used as a fuel it is found, for example, with coal at 40 kronor per metric ton ($7.75) and an installation working in counter pressure the economic limit

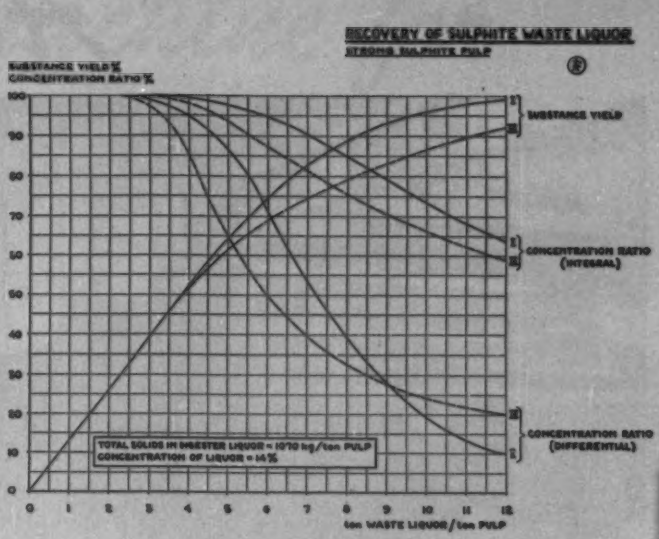

RECOVERY OF SULPHITE WASTE LIQUOR
SUBSTANCE YIELD %
CONCENTRATION RATIO %
SUBSTANCE YIELD
CONCENTRATION RATIO (INTEGRAL)
CONCENTRATION RATIO (DIFFERENTIAL)
TOTAL SOLIDS IN DIGESTER LIQUOR = 1070 kg/ton PULP
CONCENTRATION OF LIQUOR = 14 %
ton WASTE LIQUOR / ton PULP

Figure 1

for the dry content of the liquor is 4.5 percent. With coal at 85 kronor a metric tons ($16.40) and with five-effect evaporation in vacuo, the corresponding dry content is 9 percent. With a combination of an alcohol plant and evaporation plant the economic boundaries may be calculated but this is naturally more complicated than in the simpler case *(5).*

It is also somewhat difficult to draw comparisons between various displacement procedures purely on the basis of *Figure 1.* Scholander *(6)* has made a theoretical survey over the conditions of waste liquor recovery and put forward methods which simplify such comparisons.

Another system is to accumulate the results of displacement in a u-f-diagram according to *Figure 2.* In the top right-hand corner lies the ideal condition for the recovery of liquor where both the u- and f-values are 100 percent. Curves in this figure show liquor recovery, directly from the digester after pressure has been reduced by SO_2 recovery by usual European method. In all experiments the only displacement agent used was warm water

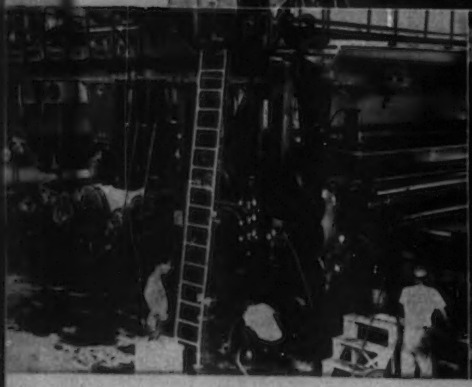
The result of liquor recovery varies considerably as may be seen and even then these curves represent no value limits for the cases which occur in practice.

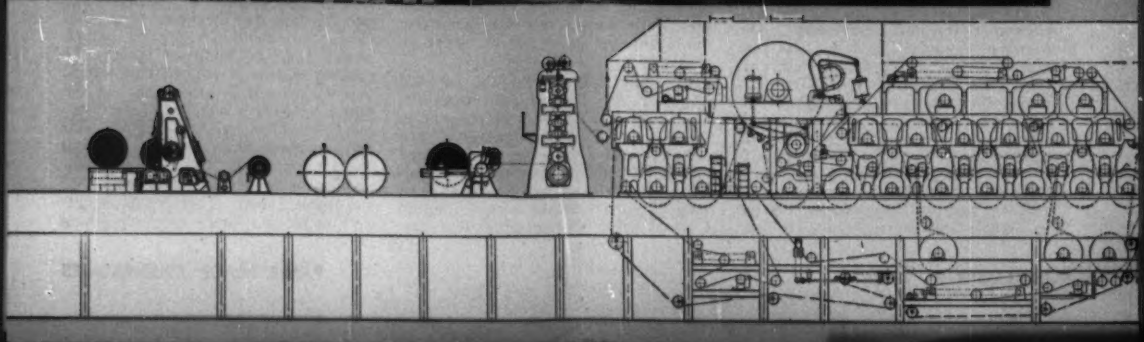
It would appear that the internal fitting of the digester constitutes the most importan factor with respect to the results of liquor recovery. The circulation and warming are arranged mainly in order to maintain the quality of the pulp as unvarying as possible. It is no means sure, but quite a usual thing that a circulation system favorable for cooking conditions produces bad results in liquor recovery. This apparently depends on the fact that the displacement is upset by the liquor by-passing the pulp by taking short cuts through internal circulation tubes and strainers in the digester *(7).*

From earlier times it has been considered feasible to install a liquor recovery system in the blow pits in order to improve conditions for the utilization of waste sulphite liquor *(8).*

The following procedure is followed in several Swedish factories. When the contents of the digester pass into the blowpits, chilled digester liquor is introduced into the blow-off line below the blow-off valve of the digester in order to avoid reaction pressure on the blow-off line and excessive steaming from the blow pit which is tantamount to heat losses and sanitary inconveniences. Expansion in the blow-off valve with a consequent defibration of the pulp is a very important factor in obtaining satisfactory results from liquor recovery. Previous research, as shown in *Figure 3* seems to show that liquor recovery in the blowpits produces better results than recovery in the digester. In this way the cooking time is also shortened. On the average this time gain in the cooking plant should be about 10 percent which means that in factories where the cooking section is the smallest should gain 10 percent in production. If the liquor recovery is installed in the blowpits instead of in the digesters, difficulties involved in digester washing are thus avoided. In order to minimize these, warm water is usually used for displacement. This is not necessary in blowpit liquor recovery where

Another





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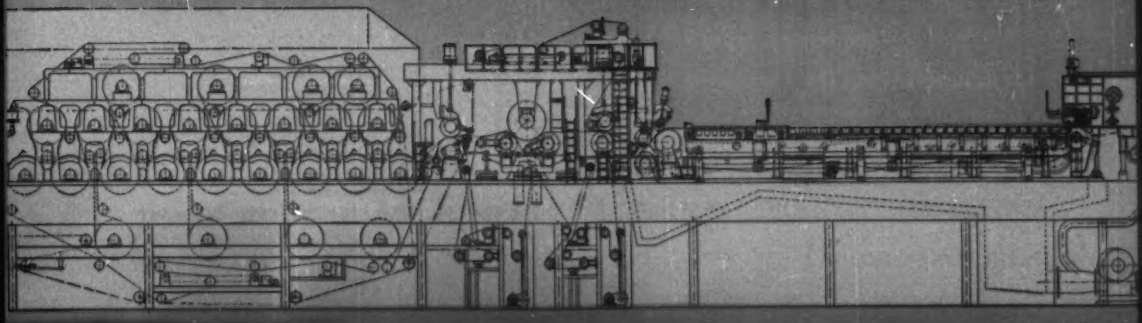

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Dry Part consists of 84 paper and 14 felt dryers, all 60" diameter. A 42" receiving dryer is arranged for creping. A smoothing press, which also may be used for striping, is located between the first and second dryer sections. The 12' Yankee dryer unit is also equipped with a special striping roll and follows the second dryer section. To simplify the handling of the sheet and minimize breaks when by-passing the Yankee dryer section on M.F. grade, a third section of four 60" paper dryers is located between the Yankee dryer and the single stack of calenders.

Other new features include air-controlled tension on the fourdrinier wire, improved vacuum connections to the flat presses, and quick handling device for removing and replacing individual suction boxes. Air loading has been incorporated in the calender stack and the reel redesigned to prevent vibration and jumping, to the end that "bull's eye" rolls are insulated.

8-roll Calender stack, Pope reel, and a high speed Winder with special roll handling device are provided at the finishing end. The machine is driven by G.E. electric sectional drive with individual section generators and full electronic controls.

cold water may be freely used. In this way considerable heat saving is obtained.

But there are certain conditions essential for successful liquor recovery in the blowpits. The construction of the blowpits must be such that the pulp runs out evenly over the whole surface. The blowpits must also be placed so that the necessary system of pumps and pipe-lines may be installed without difficulty. Blowpits into which the contents of the digesters are blown as stated must be much more carefully constructed than those into which the partially washed pulp is rinsed. Wall-linings must, in many cases, be renewed if displacement in the pits is to be undertaken. This added to the necessary piping system proves expensive and this outlay must be considered relative to the gain by using such a method. Another disadvantage is that the blowpits are often used as storage-vessels, a state of affairs which is only possible to a limited extent when they are used, at the same time, for liquor recovery. Furthermore, as a rule, the sulphate ion content of the waste liquor is higher when liquor recovery is carried out in the blowpits, since the process is carried out at a lower temperature in the blowpits than in the digester *(9)*. It may be necessary to take special steps in order to reduce the sulphate ion content *(10)*.

A considerable time saving may be effected in the cooking plant if—as is often the case in the USA—blowing is carried out directly into the pits without any previous gas-removal from the digester. With prevailing sulphur and fuel costs in Sweden such a blowing technique may only be carried out on condition that the blowpits are equipped with a recovery system where SO_2 as well as heat is recovered *(11)*. Finally it is an economic question as to the advantages to be derived from such a system.

This short review of the waste liquor recovery question may serve to draw attention to the fact that an evaporation installation cannot be based purely on existing conditions. It is necessary to start in the cooking plant in order to find the economic solution to the problem of the utilization of sulphite liquor.

Evaporation

The main problem in the evaporation of sulphite waste liquor is to construct an apparatus, which is so arranged, that the problem of scale-formation may be controlled during continuous processing. Sulphite waste liquor contains considerable quantities of calcium—and sulphate ions, so that a precipitation of calcium sulphate during the evaporation process can scarcely be avoided. Calcium sulphate is precipitated either in the form of sludge or as a scale on the heating surfaces. The evaporation installation should therefore be such that the smallest possible quantity of calcium sulphate is precipitated on the heat transferring surfaces and, at the same time, it is absolutely essential that the scale formed may be washed out effectively.

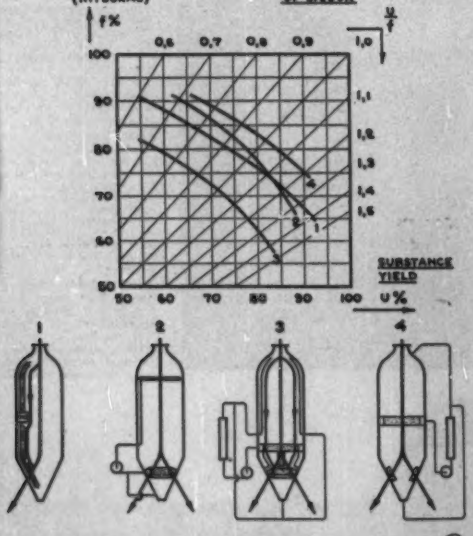
The first large-scale attempt to evaporate sulphite waste liquor without periodical shut-downs for cleaning was the evaporation plant installed in Hörnefors Sulphite Factory by Raméns Patenter. Much valuable experience was thus obtained as an aid to further development. At the moment there are no installations in use of the original Hörnefors patterns, in which the waste liquor was evaporated by using hot gases obtained directly from the boiler furnace *(12)*.

All Swedish evaporation installations use steam as a heat source and, in principle, every evaporation stage consists of an expansion vessel from which the liquor is circulated through a separate heat-exchanger. Circulation is maintained by the use of heat energy or a pump.

The next step in the development of waste sulphite liquor evaporation was the installation delivered to Hallstavik by Rosenblads Patenter where a switching-method of heat exchangers (Grewin-Lindberg method) *(13)* were proved.

In heat-exchangers of this type both sides must be identical since the side conveying liquor to be heated for a certain time conveys steam during the following period when the acid condensate washes away the scale formed. When the condensate does not distribute itself evenly over the whole heating surface, the washing system is complemented with special condensate pumps which spray condensate into the heat exchanger in such a way that all the surfaces are rinsed. The switch-over takes place several times a day depending on the rate at which

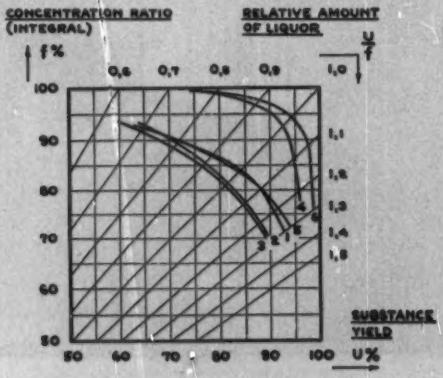
Figure 2 Left


CONCENTRATION RATIO (INTEGRAL)
RELATIVE AMOUNT OF LIQUOR
f %
U/f
0,6 0,7 0,8 0,9 1,0
100 90 80 70 60 50
1,1 1,2 1,3 1,4 1,5
50 60 70 80 90 100 U %
SUBSTANCE YIELD
1 2 3 4

U-f DIAGRAM

LIQUOR REMOVAL (DISPLACEMENT) FROM DIGESTER

Figure 3 Below


CONCENTRATION RATIO (INTEGRAL)
RELATIVE AMOUNT OF LIQUOR
f %
U/f
0,6 0,7 0,8 0,9 1,0
100 90 80 70 60 50
1,1 1,2 1,3 1,4 1,5
50 60 70 80 90 100 U %
SUBSTANCE YIELD

FACTORY	CURVE	DISPLACING LIQUOR
A	1	COLD WATER
B	2	COLD WATER
B	3	WARM WATER 40 °C
B	4	WEAK LIQUOR + COLD WATER
C	5	COLD WATER
C	6	WEAK LIQUOR + COLD WATER

U-f DIAGRAM

LIQUOR REMOVAL (DISPLACEMENT) FROM BLOW PIT

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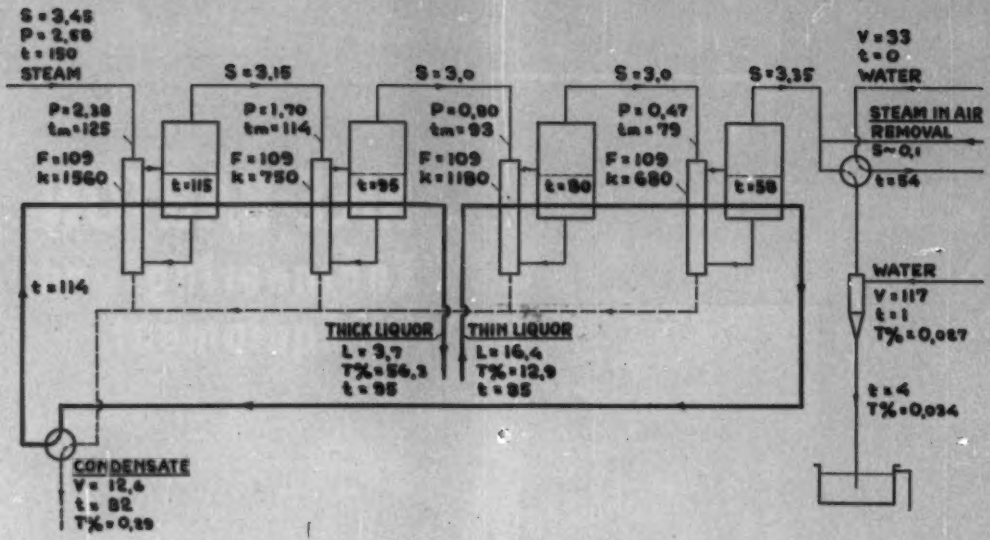
RICE BARTON

WORCESTER, MASSACHUSETTS



WATER EVAPORATED	12,6 ton/hr.
SPECIFIC HEAT CONSUMPTION (EXCL. THE SENSIBLE HEAT OF THIN LIQUOR)	182 kgcal/kg. WATER EVAP.
LOSS OF SOLIDS IN STEAM AND CONDENSATE	40 kg/hr.
ACCUMULATED LIQUOR	50 kg/hr.
ACCUMULATED SOLIDS	10 kg/hr.

KEY

S	STEAM	ton/hr.
L	THIN LIQUOR	ton/hr.
V	WATER	ton/hr.
T%	PER CENT SOLIDS	%
P	ABSOLUTE PRESSURE	kg/cm².
t	TEMPERATURE	°C.
tm	SATURATION TEMPERATURE	°C.
F	HEATING SURFACE	m².
k	APPARENT HEAT-TRANSFER COEFFICIENT	kgcal/m² hr. °C.

DATA FROM A DELIVERY TEST WITH A FOUR-EFFECT VACUUM EVAPORATOR

Figure 4

scale-building occurs *(14)*.

The evaporation of sulphite waste liquor with switch-type heat exchangers is carried out by allowing scale-formation to occur but the subsequent washing must be so thorough that the incrusted layer is never allowed to increase over a certain limit.

Ramén *(15)* has chosen another way, and is attempting, by pressure-heating the liquor in one or several stages when the liquor is passing between the stages in the evaporation-plant, to cause such a precipitation of calcium sulphate that the heating surfaces may be maintained in a permanently clean condition. According to previous experience in this field, the desired result has been obtained only to a limited effect, with a scale forming on the heating surfaces. Incrustation must be removed by washing or through some other similar process. During these cleaning periods either the whole plant must be closed down or conditions arranged so that separate stages may be shut off for washing while the remainder of the installation continues production.

The most recent evaporation plants constructed by Rosenblads Patenter have not each individual stage switchable but the whole installation is switched over according to Lockman's Method *(16)*. The stage which has been working for a certain time with the highest steam pressure works under the next period at the lowest steam pressure. In this way it is possible to arrange so that not only the heating surfaces but all the liquor feed pipes, valves, and pumps are washed with the acid condensate.

Edling *(17)* has, since the question of sulphite liquor evaporation has been seriously taken up in Sweden, reviewed the various possibilities with respect to the installation of an evaporation plant in a sulphite factory.

The most usual type of evaporation plant is the so-called vacuum plant. Most of the evaporation takes place at a pressure which is below atmospheric pressure, which decreases the tendency for calcium sulphate precipitation. Steam from the final stage which has a temperature of about 50° C. proceeds directly to a spray-condensor in which case all heat energy is lost or else is condensed in a surface condensor through which water is warmed so that a certain amount of the heat energy is recovered for use in the mill.

Today, the evaporation of waste sulphite liquor in vacuo presents no difficulties and *Figure 4* shows the result of a delivery test from such an installation, which was set up by Rosenblads Patenter, at Grycksbo Paper Mill.

(To be concluded next week)

Stainless must go a long way, too!

To meet the demands of national defense and civilian needs, stainless must go a long way. That's why, now, more than ever—if you use stainless—use it wisely and efficiently.

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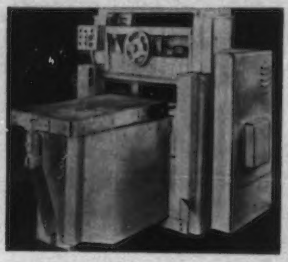
New Equipment

Hobbs Autotronic Die Press

The latest development in automatic table feed die presses was recently demonstrated. Called the Autotronic because of the automatic table motion and complete electronic control system, the new press embodies the me-



chanical principles of the standard Hobbs press.

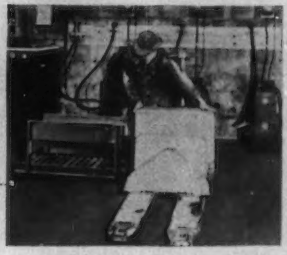
Operation of the press is simple. The operator sets the die on the material to be cut and pushes the "cycle start" button. The table moves forward, the die interrupting the beam of light emanating from the photo-electric unit in the housing. This actuates the time relay, so that when the die has reached the correct cutting position, the head will descend. The cut made, the table moves out to the most convenient position for the operator to unload and replace the die. An adjustment wheel and lock on the left-hand side of the housing permits simple adjustment of the photo-electric unit to accommodate various sizes of dies and lifts of stock. A single adjustment sets both cells to the required height. This photo-electric unit also provides a safety feature. If, at any time during the cycle, the operator's hands are beneath the head interrupting the beam of light, the head will not come down. If the head has already started to descend, interrupting the light beam will stop operation—instantly, it is stated.

The machine will be on demonstration at E. P. Lawson's showroom located at 426 West 33rd Street, New York 1, N. Y.

Battery Handling Cart

A novel idea for handling industrial truck batteries is reported by Gould-National Batteries, Inc. Developed by the Distribution Terminal Warehouse, Cleveland, Ohio, the idea is a four-wheel battery cart which eliminates lifting, avoids the necessity of an overhead crane, and can be used in any industry where industrial trucks are used.

A unique feature of the homemade carrier is its use of a four-foot section of roller-conveyor as a bed. This construction permits batteries to be rolled on or off the cart rather than lifted. Other battery-cart components



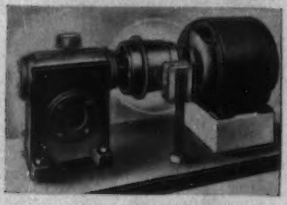
include four 2-foot sections of structural angle iron, four casters and some scrap wood.

To assemble such a battery-cart, secure a caster to each corner of the conveyor-section so that the section rolls freely on the floor. Weld a structural angle at each corner of the section, perpendicular to it and on the opposite side from the casters. The angles form uprights for a framework which prevents the battery from being pushed off the cart. To complete the framework, bolt 2x8-inch planks across both sides and one end of it. The 2x8 at the other end should be removable to allow the battery to be rolled on and off the conveyor-section.

When removing a battery, the workman simply rolls the carrier to the "walkie" truck and slides the battery onto the conveyor-section. The carrier is then pushed to a charging location. Since Distribution Terminal Warehouse has a carrier for each battery, carriers are not unloaded during charging. A night attendant puts the batteries on charge and records the battery number, date, specific gravity, charger number, voltage and charging time. The next morning a workman rolls carriers to the trucks and replaces the now fully charged batteries.

Overload Protective Unit

Anchor-Waldron is the new name under which the well established Anchor cutout and Anchor cutout coupling will be marketed. An agreement has been reached between Anchor



Steel & Conveyor Co., of Dearborn, Mich., and the John Waldron Corp., of New Brunswick, N. J., whereby Waldron will market both of these overload protective units through their numerous sales representatives located in principal cities throughout the United States and Canada.

These units have been in operation since 1938 and are used extensively in the automotive and other industries as protective devices on their conveyor drives.

Waldron's home office and sales representatives are now in a position to provide engineering service on these units. Bulletin No. 51 available.

New Specimen Holder For Abrasion Tester

Several new type specimen holders are available for both the portable and heavy-duty laboratory type of Taber Abrasers.

A precision-built testing instrument designed to evaluate the resistance of surfaces to rubbing abrasion, Model 140's range of application includes qualitative and quantitative wear of protective lacquers and other coatings of paper, textiles, etc.

One of the new specimen holders is the rimmed type that can be partially filled with a liquid to wet the specimen by absorption or to completely sub-

(Continued on page 40)

THE PULP & PAPER TRADING CO.
21 EAST 40TH STREET, NEW YORK 16 LEXINGTON 2-8640
New England Representative—CHARLES J. BROWN
131 State Street, Boston 9, Mass.—Tel.: Richmond 2-2332
TWX (Teletype) N. Y. 1-684

Rogers PAPERS
Folding Bristol, Index Bristol, Au Sable Bristol, Mill Blanks, Thindex Bristol, Antique Cover, Leathermade Cover, Ninety-leather Cover, Ledger, Bond, Ninepoint Postcard, Whiteface Tag, Folder Tag.
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CAN GIVE YOU
ALL 4 OF THESE PROPERTIES

IN YOUR PACKAGES AND PAPER PRODUCTS

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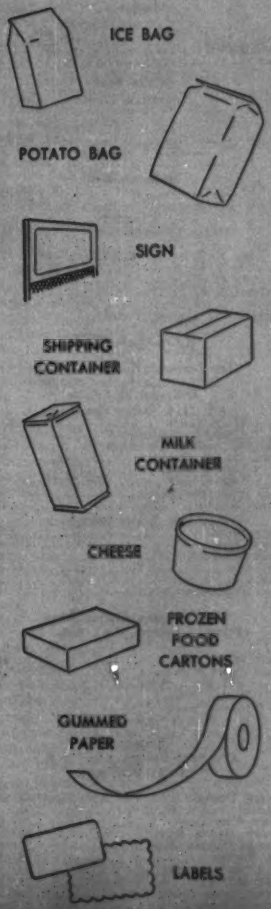
3. Release
4. Insolubilization



Now you can order paper and paper products with your choice of these four desirable features—water repellency, wax anchorage, release qualities, water-resistant coatings and adhesives. Treatment with Du Pont "Quilon" stearato chromic chloride can improve your product for extra salability! Check the list of uses below . . . you may find "Quilon" to be the answer to your present paper or packaging problems. Better still, try it out and see for yourself! Tell your supplier you'd like to have some of your paper treated with "Quilon" for testing purposes.

WATER REPELLENCY

Produce *ice bags—potato sacks* which excel in performance.

Offer *signboard* and *poster papers* with good durability and printing properties.

Introduce water-repellent *shipping containers* for wet vegetables, sea foods—use in refrigerated storage.

Develop blood and serum resistance on *meat wraps* and *board*—reduce sticking of meats to paper.

WAX ANCHORAGE

Improve rigidity—lower seam liquid absorption on *liquid-tight containers.*

Increase lactic-acid resistance for *food pails and tubs, milk-bottle closures.*

RELEASE

Produce paper backings for *pressure-sensitive labels* which "strip" easily.

Minimize blocking tendencies on *gummed and pressure-sensitive tapes.*

Develop exceptional anti-blocking characteristics on *non-fibrous papers.*

Eliminate fiber-pull upon separation of adjacent *frozen packages—cartons.*

INSOLUBILIZATION

Insolubilize *polyvinyl acetate—alcohol* based films, coatings, adhesives.

Treat *casein, zein and soybean protein* base coatings for wet-abrasion resistance.

Modify *glue-gelatin* to produce more water-resistant films or coatings.

Detackify *moisture-sensitive* coatings.

Get details on "Quilon" for your own particular packaging problems. Send the coupon or write Du Pont today.

DU PONT
REG. U.S. PAT. OFF.

"QUILON"
Stearato Chromic Chloride
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department, Wilmington 98, Delaware
Our interest concerns the use of "Quilon" for _____ (properties desired)
on these types of packages or paper products: _____
_____
Name _____ Title _____
Firm _____
Address _____
City _____ State _____

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports
Rolls, contract, per ton $114.00/116.00
Sheets ..... 130.00/ —

Kraft—per cwt. 50# base wgt. OPS Ceiling CPR 88

F.o.b. Southern & Western integrated mills. C.I. Freight allowed up to $10 a ton.

Standard Wrapping, ctr. rolls ..	$7.75/ —
Butchers, counter rolls	8.25/ —
Standard Bag, mill rolls	7.50/ —
Shipping Sack, mill rolls	7.75/ —
Gumming, mill rolls	8.00/ —
Asphalting, mill rolls	7.75/ —
Envelope, Sub. 20, mill rolls	9.25/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$2.25 /$2.40
Wh. No. 1 MG	2.25 / 2.40
Wh. No. 1½	1.95 / 2.05
Wh. No. 2	1.75 / 2.00
Kraft Anti-Tar 20x30	2.12 / 2.25
White Anti-Tar 20x30	2.20 / —

Toilet— per case of 100 rolls—1M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5, 650 sheets	6.65/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x3	9.96/ —
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x4½, 2-ply	$8.95/10.37
4½x5, 2-ply	10.25/10.75

Paper Towels— per case of 3750

Wh. Jr. M'ill'd 9½x9½	$6.40
Br. Sr. M'ill'd 9½x12	4.40
Br. Jr. M'ill'd 9½x9½	3.90
Br. Jr. Sgl. fold 9½x10½	3.95
Blchd. 7½x11, 48/50 rolls	$6.80/$7.92

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets...	$20.55/22.55
Reg. Jute M.F. 40-lb., sheets....	19.50/21.50
Printing Manila	10.50/12.00

Gummed Tape—per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 800 ft. GSI	8.28 / —
35-lb. 500 ft. GSO	6.21 / —

MARKET WOOD PULP

Fourth Quarter Contract Prices. Per Short Air-Dry Ton

	Varying freight allowances		On Dock Atlantic Ports		
	*U. S.	Canadian	*Swedish	*Finnish	*Norwegian
Groundwood	$92.50/ —	‡195.00/100.00			
Sulfate, Bleached	145.90/ —	190.00/200.00	$230.00/ —	$230.00/ —	$230.00/ —
Semi-bleached Sulfate ..	140.00/ —				
Sulfate, Unbl.	132.50/ —	145.00/175.00	200.00/ —	200.00/ —	
Sulfite, Blchd.	140.00/ —	160.00/175.00	225.00/ —	225.00/ —	225.00/ —
Sulfite, Unblchd.	132.50/ —	150.00/160.00	200.00/ —	200.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —			
Soda, Blchd.	140.00/ —	155.00/160.00			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwood Screenings ..	60.00/ —				
Unblchd Sulfate Sideruns	132.50/ —				
Stand. News. Sideruns..	92.50/ —	106.00 —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

Boards per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Blchd. Mla. L-d. Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers—
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$19.00/$20.50
Plain	18.40/ 19.50

Ledgers	4 Ctns.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.90/$24.65
No. 2	22.15/ 23.40
No. 3	21.90/ 22.40
Machine Coated	
No. 1	$18.40/$18.90
No. 2	16.65/ 16.90
Uncoated	
No. 1 Antique (Watermarked)...	$18.65/$19.65
Offset	18.65/ 19.90
A Grade E. F.	18.10/ 19.90
A Grade S. C.	18.65/ 19.40
B Grade E. F.	18.40/ —
B Grade S. C.	17.40/ 19.15

‡ Indicates a price change.

WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) These quotations are a partial indication of the price range in each market on the date specified, as gathered from major dealers. ALL PRICES ARE STRICTLY NOMINAL.

	New York Dec. 6	Philadelphia Dec. 10	Boston Dec. 7	Chicago Dec. 3
No. 1 Mixed Paper	nominal	nominal	$10.00/ —	$10.00/ —
No. 1 News	12.00/ 14.00	11.00/ —	12.00/ 13.00	15.00/ —
Over-issue News	15.00/ 18.00	12.00/ 14.00	15.00/ 22.00	18.00/ —
Mill Wrappers (Sulfite)	13.00/ —	10.00/ —	12.00/ —	15.00/ —
Corrugated Containers	15.00/ —	12.00/ 14.00	15.00/ 15.50	15.00/ —
Double Kraft Ld. Corr. Cuts ...	35.00/ 57.50	35.00/ 50.00	40.00/ 57.50	50.00/ 57.50
100% Kraft Corr. Cuts	60.00/ 80.00	75.00/ 80.00	75.00/ 80.00	85.00/ —
Used Sugar & Flour Bags	45.00/ 50.00	35.00/ 50.00	45.00/ 46.50	40.00/ —
Super Resorted Br. Kraft	60.00/ 70.00	45.00/ 55.00	45.00/ 60.00	40.00/ —
New Br. Kraft Env. Cuts	115.00/125.00	100.00/ —	100.00/125.00	100.00/ —
New Br. Kraft Cuts	105.00/115.00	95.00/ —	85.00/105.00	90.00/ —
No. 1 Gdwd Shvs.	35.00/ 45.00	30.00/ 40.00	33.00/ 40.00	30.00/ —
White Newsblanks	60.00/ 70.00	60.00/ 70.00	55.00/ 75.00	50.00/ —
No. 1 Flyleaf Shvs.	35.00/ 60.00	45.00/ 50.00	45.00/ 70.00	60.00/ —
No. 1 Soft Wht. Shvs.	125.00/140.00	110.00/ —	125.00/145.00	125.00/ —
Super Soft Wht. Shvs.	160.00/165.00	— / —	140.00/165.00	145.00/ —
Hd. Wht. Shvs.	160.00/170.00	145.00/155.00	150.00/175.00	140.00/ —
Hd. Wht. Env. Cuts	165.00/175.00	170.00/175.00	175.00/190.00	150.00/ —
New Manila Env. Cuts	100.00/120.00	95.00/110.00	110.00/125.00	65.00/ —
Col. Tab Cards	80.00/ 85.00	70.00/ 75.00	80.00/ 95.00	85.00/ —
Manila Tab Cards	110.00/120.00	100.00/110.00	120.00/130.00	100.00/ —
No. 1 Mixed Ledger	75.00/ 80.00	70.00/ 75.00	67.00/ 95.00	85.00/ —
White Ledger	100.00/110.00	95.00/105.00	100.00/110.00	100.00/ —
No. 1 Book & Mag.†	33.00/ 37.00	22.00/ 24.00	29.00/ 32.00	25.00/ —
No. 1 Rep'd. Hvy. Books‡	43.00/ 50.00	30.00/ 32.00	45.00/ 57.00	40.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. ‖ Deld.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unblchd. Muslins	21.00
Blchd. & Unblchd. Underwears	21.00
Blchd. Canton Flannels	21.00
No. 1 Light Silesias	16.00
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, f.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$6.00/$6.50
Cotton Pants & Overalls	6.50/ 6.75
Thirds and Blues, Repacked	5.00/ 5.50
No. 1 Roofing Rags	1.65/ 1.75
No. 2 Roofing Rags	1.00/ 1.10
No. 3 & 4 Roofing Rags	.90/ 1.00

Bagging
(Prices to Dealers, f.o.b. N. Y.)
PRICES NOMINAL

	Per 100 lbs.
Foreign Gunny	$5.00/$5.50
Domestic Gunny, No. 1	5.00/ 5.50
Heavy Wool Tares	5.50/ 6.00
Foreign Manila Rope	9.00/ 9.25
Domestic Manila Rope	9.00/ 9.25
Jute Strings	6.00/ 6.50
No. 1 Sisal Strings	8.50/ 8.75
Paper Mill Tares	5.25/ 5.50
Foreign Scrap Burlap	4.50/ 5.00
Domestic Scrap Burlap	5.25/ 6.00
Austr. Wool Pouches	7.00/ 7.50
New Burlap Cuttings	7.00/ 7.50

MATERIAL PRICES

Aluminum sulfate:		
coml. bags, wks.	cwt.	1.65
iron-free, c.l.		3.25
Alcohol, ethyl:		
tax free, dms. c.l.	gal.	1.01 / 1.05½
d-ld. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dms. c.l. f.f. a.l.d.	gal.	.44
Casein, acid prec.:		
dom. sh. pt. c.l.	lb.	.35 / .41½
imp. ex. dock	lb.	.24 / .36
Caustic soda:		
c.l. wks. solid, 76% cwt.		3.35
flak. & grd. 100-lb. drums		3.75
liquid 50% tanks		2.55
liquid 70% tanks		2.65
China clay:		
dom. air-float. c.l. wks.	ton	10.00
water-washed, lump, filler		11.00
coating		17.60 /30.50
imported, ex whse.	short ton	15.20 /28.35
Chlorine:		
single-unit tanks, works	cwt.	2.70
multi-unit	cwt.	3.20 / 4.40
Formaldehyde:		
USP, ink. dms, c.l. wks.	lb.	.0625/ .0675
l.c.l., E. wks.		.0675/ .0725
Fuel oil:		
Bunker C, No. 6 Cal. hvy. tanks, refinery	bbl.	1.95 / 2.15
light	bbl.	2.00 / 2.25
Hydrogen peroxide:		
USP, 35% chys. E. of Miss.	lb.	.23½/ .26½
Lime:		
hydrated, bags, wks.	tons	13.50
Rosin:		
B gum, drms, c.l. Savan.	cwt.	7.00 / 9.00*
G, H, I, K	cwt.	7.95 / 9.49*
FF, wood, do.	cwt.	6.80 / 7.30*
*OPS Ceiling, CPR 52.		
Rosin size:		
70%, gum & pale grds, tank cars, south, sh. pt.	cwt.	7.50 / 7.60
Salt cake:		
dom. bulk, c.l. wks.	ton	17.00
wks. frt. all.	ton	20.00 /22.00
Soda ash:		
light, 58%, bags, wks.		1.50
bulk	cwt.	1.20
Sodium silcate, 40°:		
turbid. c.l. wks.	cwt.	1.30 /
l.c.l. wks.		1.60 / 1.85
Sodium peroxide:		
dms. c.l. E. of Miss.	lb.	.21
l.c.l. do.	lb.	.21½/ .22
Soybean, protein:		
chem. isol, wks, c.l.	lb.	.24 / .28
Cinn. and Chic.		
Sulfuric acid:		
60° Be. chys. c.l. wks.	cwt.	1.75 / —
l.c.l. wks.	cwt.	2.05 / 2.85
Sulfur:		
crude, c.l. mines, contract,	long ton	21.00 /22.00
f.o.b. vessels Gulf		22.50 /23.50
Sulfur dioxide:		
liquid, coml. cyl. wks.	lb.	.09
multi-unit cars	lb.	.0535
Starches:		
pearl corn, bags, c.l. wks.	cwt.	6.19 / —
white dextrines, c.l. wks.	cwt.	7.58 / —
potato, Idaho, c.l. wks.	cwt.	6.50 / —
potato, Maine, c.l. wks.	cwt.	nominal
tapioca, conv. dextrines	cwt.	6.50 / 7.75
Talc:		
domestic, 50-lb. sacks, c.l. wks.	ton	25.00 /30.00
Titanium dioxide:		
anastase, c|l deld., bags	lb.	.21 / .21½
l.c.l. deld.	lb.	.22 / .22½
rutile, c.l. deld.	lb.	.23 / .23½
l.c.l. deld.	lb.	.24 / .24½

ASSOCIATIONS

Western New York TAPPI Hears Talk On Quality Control

The Western New York Group of the Empire State Section, TAPPI, held its regular meeting December 12 at the Prospect House.

Mr. Howard Bolton, Assistant Superintendent of Inspection, Harrison Radiator Division of General Motors Corp. spoke on "A Practical Approach to Quality Control."

Two of the factors that are essential in effecting Quality Control are:

1—Variables that offset quality such as personnel, machinery and equipment, materials and variations of materials, and working conditions.

2—Working standards — How they are established. Some are set up by the government, some by customers, some by Engineering Departments.

There is a very definite relationship to cost and quality. Better quality costs more because of the use of higher skilled operators and better equipment.

Statistical Quality Control is one of the tools used in governing quality production. By use of charts, test results may be analyzed to control production.

Penjerdel Supts. Will Hold Meeting in York

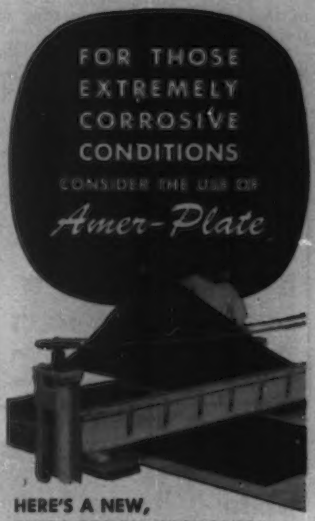
Elmer Mitchell, Glassine Paper Company, Manayunk, Philadelphia, Pa., has announced that the Pennsylvania-New Jersey-Delaware Division of The American Pulp and Paper Mill Superintendents Association, of which he is chairman, will hold its 1952 Spring meeting on May 9-10 at the Yorktowne Hotel, York, Pa.

One of the features already scheduled for this meeting, according to Mr. Mitchell, will be a visit to the mill of the Schmidt & Ault Paper Company at York. This mill, equipped with two Fourdriniers and one cylinder machine, makes boxboard, bogus, can board, chip, indented, news board, saturating, wrapping, sheathing, tube board, corrugating material, drawing and other specialties.

John Dieffenderfer, Hercules Powder Co., Inc, Wilmington, Del., has been named the Industrial Affiliate Representative for the Division for 1951-52. He succeeds Walter B. Morehouse, Nopco Chemical Co., Harrison, N. J.

Connecticut Valley Superintendents To Meet Feb. 1, in Holyoke

Alfred Montagna, Southworth Paper Co., West Springfield, Mass., chairman of the Connecticut Valley Division of The American Pulp and Paper Mill Superintendents Association, has reported very favorable progress in the working out of the details



HERE'S A NEW, EXTRA-TOUGH, ECONOMICAL INDUSTRIAL SHEET LINING

Especially designed to protect against extremely corrosive conditions, Amer-Plate is particularly adaptable for use in highly corrosive sewers, chemical storage tanks, tank cars and tank trucks hauling unusually corrosive solutions.

Composed of inert resins and plasticizers, Amer-Plate is impervious to gases, highly resistant to acids, alkalies, alcohol, oils, salts, and petroleum products. It has a very low moisture vapor transmission rate, will not support combustion, and contains no toxic materials.

Amer-Plate is a flexible thermoplastic sheet, practical for application to flat, curved, and angular surfaces. Its economy and effectiveness has been proved in the field in over 10 years of development and testing.

This remarkable sheet lining is available in two convenient types: Plain AMER-PLATE for existing steel or concrete tanks or structures and T-Lock AMER-PLATE for newly cast concrete pipe and structures.

So...wherever you require long lasting protection against extreme corrosion, make a full investigation of the possibility of using Amer-Plate. Write for complete information.

Amer-Plate industrial sheet lining is the result of many years experience in the manufacture and application of Amercoat protective coatings.

AMERCOAT CORPORATION

of the February 1, 1952, meeting of the Division.

This meeting is to be held at the Roger Smith Hotel, Holyoke, Mass. It is a dinner meeting and is scheduled for 7:00 p.m.

The feature address of the evening is to be made by Dr. Allan A. Stockdale of the National Association of Manufacturers.

Dr. Stockdale is a speaker whose international reputation is based solidly upon his ability to portray the human side of business and industry. Long a student of what he calls "the science of human relations," Dr. Stockdale brings to the platform years of research and study, which he shares with his audiences in a forceful and entertaining manner.

Mr. Montagna also reports that C. I. Horton of the R. T. Vanderbilt Co., South Norwalk, Conn., is the 1951-52 Industrial Affiliate Representative for the Division. Mr. Horton served in this same capacity for 1950-51.

CHAS. T. MAIN, INC.
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Process Studies, Design, Specifications and Engineering Supervision
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Steam, Hydraulic and Electrical Engineering Reports, Consultation and Valuations
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DE LAVAL white water pumps

DE LAVAL Steam Turbine Company
TRENTON 2, NEW JERSEY

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Fourdrinier Wires
MENASHA, WISCONSIN

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Without Work Stoppage
Ferguson paper mill specialists can expedite a complete modernization program for you—efficiently—economically and without loss of production.
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THE H. K. FERGUSON COMPANY
ENGINEERS AND BUILDERS
Headquarters: Ferguson Building, Cleveland, Ohio
District Offices: New York, Houston, Chicago, Los Angeles, Cincinnati

APPLETON FELTS
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APPLETON WOOLEN MILLS - APPLETON, WIS.

SUPPLIERS

CAMERON MACHINE CO., Brooklyn, N. Y., has announced the appointment of Leonard Rockstrom to

Leonard Rockstrom

vice-president in charge of engineering; Alfred Stirba, Jr., to vice-president in charge of manufacturing; and Eugene J. Ward to vice-president in charge of sales.

Mr. Rockstrom has been chief engineer for the past two years. Mr. Stirba joined Cameron in 1945 as plant superintendent. He was appointed assistant to the president in 1949 and was named works manager this year. Mr. Ward has been associated with Cameron for fourteen years. He was made assistant service manager in 1945 and service manager in 1948. For the past year he has been general sales manager.

Alfred Stirba Jr.

Eugene J. Ward

BLACK-CLAWSON COMPANY this week announced the appointment of A. G. Gibson, to the position of Chief Engineer of the Black-Clawson Company, Hamilton, Ohio division.

The announcement, made by M. E. Cody, Vice President and General Manager of the Hamilton division, stated that P. J. Jerardi, former Black-Clawson Chief Engineer, has accepted an executive position with the Baldwin-Lina-Hamilton Corporation, a neighbor of The Black-Clawson plant in Hamilton, Ohio.

Mr. Jerardi will continue with The

T. A. Gibson

Black-Clawson Company until January 1, 1952, to coordinate and complete a group of special engineering projects.

Mr. Gibson, presently a resident of Middletown, Ohio, began with the company at the Shartle Bros. Middletown division as a Sales Engineer. He successively held the positions of Plant Engineer and Director of Export Engineering until his transfer to the Hamilton division as Assistant Chief Engineer in 1950.

Prior to joining the Black-Clawson Organization in 1937, Mr. Gibson was associated with Central Fibre Products Company, Inc., Hutchinson, Kansas, and Stewart Insoboard Company at St. Joseph, Missouri, serving as Superintendent of the latter.

SUTHERLAND REFINER CORPORATION has announced the resignation of Dr. H. Wyatt Johnston as vice-president of Sutherland Refiner Limited. Commencing January 1, 1952, Dr. Johnston will act as consultant to the Sutherland interests in Canada, United States, and foreign countries. He will also be available as consultant to the pulp and paper industry generally. His address for the time being will be 4048 Gage Road, Montreal.

APPLETON WIRE WORKS, INC., with headquarters at 900 North Union Street, is building a $100,000 wire-weaving plant on the Troy highway near Montgomery, Ala. It should be completed early in 1952.

A spokesman for the company said the new plant will manufacture the Fourdrinier wires for paper machines. The building, which will have approximately 15,000 square feet of floor space, is being erected on a 25-acre site purchased from W. S. Brewbaker of Montgomery.

The plant was designed by Raymond Strickland, structural engineer, of Birmingham. Algernon Blair, Montgomery contractor, is in charge of construction.

W. E. Buchanan, president of the Appleton company, said that Montgomery was chosen for the site of the new plant after a large number of Southern cities had been surveyed. Factors contributing to the choice of Montgomery for the location of the factory included this city's proximity to Southern paper mills, and its excellent highway and rail facilities.

The first loom to be installed in the plant will be of the latest design and will have a diameter of 288 inches. Considerable time may be required to install equipment, it was disclosed. During the installation period, a relatively small number of persons will be employed, most of whom will be Montgomerians.

The Wisconsin company, a pioneer in the wire-weaving industry, built the first Fourdrinier wire-weaving plant west of the Ohio in 1895.

THE MIDWEST-FULTON MACHINE COMPANY have announced the promotion of George S. Herbert, assistant treasurer, to be assistant general manager. Mr. Herbert, a graduate of Dennison University, has been associated with the company for the past five years in various capacities, including purchasing and production.

WESTINGHOUSE ELECTRIC CORPORATION announces the appointment of H. H. Hanft as assistant to the manager of the Industrial Department. The function of this department is to negotiate and coordinate sales and engineering information in the Westinghouse organization with its industrial customers.

Formerly a section manager of the transportation sales department, Mr. Hanft was graduated from the University of Minnesota in 1925 with a Bachelor of Science degree in electrical engineering. He became manager of the land transportation section in 1949, which position he held until his present appointment.

THE BABCOCK & WILCOX TUBE COMPANY plans to transfer its assets and business to The Babcock & Wilcox Company, its sole stockholder, on December 31, 1951. The business will then continue to be operated as the Tubular Products Division of The Babcock & Wilcox Company.

Notice is hereby given to all persons interested in or who may be affected that The Babcock & Wilcox Tube Company, a business corporation, has filed with the Department of State of the Commonwealth of Pennsylvania at Harrisburg, Pennsylvania, on the 5th day of December, 1951, a Certificate of Election to Dissolve said corporation, and that the Board of Directors is now engaged in winding up and settling the affairs of said corporation to the end that its corporate existence may be terminated by the issuance of a Certificate of Dissolution by the Department of State of the Commonwealth of Pennsylvania, pursuant to the provisions of the Business Corporation Law of the Commonwealth of Pennsylvania.

TAYLOR INSTRUMENT COMPANIES has announced several major changes in the supervision of the sales department, according to Raymond E. Olson, newly elected president of the company. Olson was formerly vice-president and general sales manager.

Appointed to replace him as general sales manager is Frank S. Ward (Scottsville, New York), who since 1945 has been industrial sales manager.

Ward's place as industrial sales manager is being taken by Albert J. Fleig (210 Bonnie Brae Avenue), who, since 1945, has been divisional sales manager in charge of sales to the chemical, petroleum and canning industries.

George E. Heller (15 Willowdale Drive) has been made manager of a new industrial sales division.

PEOPLE

(Continued from page 14)

laboratory technician and then in successive moves was transferred to other divisions of the corporation, moving to Escanaba from Kingsport in January, 1947, to accept the position of superintendent of the Escanaba Paper Company. Niederauer now holds the position of assistant manager in which capacity he will continue to act in addition to his duties as vice-president.

C. L. GUNDY, president of Wood, Gundy & Company Limited, Toronto, who was recently elected a director of Abitibi Power & Paper Company, Limited, to fill the vacancy caused by the death of his father, the late J. H. Gundy. He is also a director of Simpsons Limited, Dominion Steel & Coal Corporation Limited, Dominion Coal Company Limited, Nova Scotia Steel & Coal Company Limited, Dominion Life Assurance Company, Eddy Paper Company Limited, Canada Iron Foundries Limited, United Corporations Limited, Canadian Niagara Power Company Limited, Mercury Mills Limited and London-Canadian Investment Corporation.

C. L. Gundy

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DEPENDABILITY

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POIRIER CONTROL CO.

WATERVILLE, MAINE

FORESTRY

Georgia Leads in Pulpwood

For the third consecutive year, Georgia led all Southern states in annual pulpwood production in 1950.

The Georgia total of 2,221,000 standard cords was an all-time high for the state, and represented 11 percent of the nation's pulpwood production.

Runner-up to Georgia was Mississippi with 1,665,863 cords and Florida was third with 1,385,000 cords.

Figures were released Saturday by the Georgia Forestry Commission, based on a survey by the Southern and Southeastern forest experiment stations and the Southern Pulpwood Conservation Association.

Bryan was the leading county in Georgia with an output of 80,063 cords. Next in line were Camden County, 77,964; Effingham, 71,407; McIntosh, 61,091; Wayne, 55,961; Charlton, 54,045; Liberty, 53,151; Clinch, 51,267; Lowndes, 40,730, and Bulloch, 39,150.

Bowaters Acquires Tenn. Woodlands

Bowater Paper Corporation, Ltd. has purchased 579 acres of timberland as a partial source of supply for a $50 million newsprint mill it proposes to build near here.

It was the first outright purchase by the firm which has applied to the National Production Authority for a certificate of necessity to build the mill.

The tracts, bought for a total of $14,660, are situated in Murray County, Ga., across the state line from here. Transfer of the titles was announced by F. R. Kendrick, clerk of Murray County Superior Court.

Spruce Beetles Now Under Control

DENVER, Colo.—U. S. Forest Service officials here predict that one more frontal spraying attack on the destructive Engelmann Spruce beetle will reduce the insect's status from that of a major threat to Rocky Mountain timber to that of a minor pest. From then on, they said, only small scale, localized control programs will be necessary.

About 500,000 acres on the White River National Forest have been attacked by the beetle and about 100,000 additional acres in outside areas plus portions of four other national forests.

Regional Forester Edward P. Cliff said the service will request a Congressional appropriation of $1,670,000 for this year's work. To this sum it will add the $200,000 remaining from the last appropriation.

It had been estimated that 1,600,000 remained to be sprayed at the end of 1950. However, when temperatures in the main blight areas fell to below fifty degrees below zero that winter about 85 percent of the beetles were killed. Money for last summer's program was not appropriated until August 20. From then until bad weather called a halt to the spraying, about 200,000 trees were treated. An estimated 225,000 trees are still infested and another 175,000 are open to attack this spring. This number is controllable, service technicians say, and with the program planned, all the trees can be treated.

B. C. Forest Commission Desired

Establishment of a forest commission in British Columbia is receiving increasing support from all branches of the forest industry. The idea was broached some time ago by J. W. Baikie, president of the Truck Loggers' Association, who stated that the government had failed entirely to implement the seven-year-old Sloan Report, which set out a policy for conservation, regeneration and cutting of B. C. forest resources. Mr. Baikie contended that the forest branch of the government had failed to advise the industry which areas would be open to loggers, and he said the operators should participate in development of a good crop of trees as the old crop was harvested.

This attitude was supported by the Southern Interior Lumbermens Association, and now Leander Manley, secretary-manager of the Western Branch of the Canadian Pulp and Paper Association, announces that his organization will lend its support to the demand for a forest commission.

Forest Land Auctioning Proposed in Quebec

The Liberal leader in Quebec, George Marler, recently proposed that the Quebec government issue forestry concessions by auction in order to increase the provincial revenue from newsprint companies. He stated that although the price of newsprint has risen considerably since 1946 that government charges for timber limits on Crown lands have not risen since that time when the rate was $500 per square mile.

However, Forests Minister Bourque pointed out that the $500 was a minimum rate and sometimes $1000 per square mile was charged, the value being determined by an inventory conducted by the forestry department.

Pulp Mills Buy Woodlands

Several recent large transactions in Florida timber lands have been followed by some smaller deals.

The Armstrong Cork Co., Lancaster, has bought 25,000 acres in Walton County, Northwestern Florida, to supply pulpwood to its insulation board plant at Pensacola.

The St. Marys Kraft Corp., St. Marys, Ga., has added 49,000 acres in Northern Florida counties to its holdings.

The West Virginia Pulp and Paper Corp. has leased 2,600 acres in Clinch County, Ga., for three years.

Previous transactions of larger size were the purchases of 450,000 acres in Florida by the Buckeye Cellulose Corp., which is building a plant at Foley, Fla., and 238,000 acres by the Hudson Pulp and Paper Corp.

FINANCIAL

Container Votes Dividend

Container Corp. of America voted an extra dividend of 75 cents on the common payable December 27 to stock of record December 18. The company paid an extra of 62½ cents in December 1950.

Puget Sound Pulp & Timber Co. Declares Dividend

At their meeting held December 10, 1951, the board of directors of Puget Sound Pulp & Timber Co. declared the regular quarterly dividend of 50 cents a share on the common stock, payable December 29 to stockholders of record December 20, 1951. Including this payment, a total of $2.50 a share has been paid or declared payable in 1951.

Seaboard Votes Dividend

Seaboard Container Corp. voted a dividend of 37½ cents on the Class A common, payable December 27 to stock of record December 20. This brings payments for the year to 50 cents against 25 cents in 1950. Sales of Seaboard Container in the nine months to September 30 increased to $10,893,400 from $6,210,600 a year ago. Volume in the September quarter was $2,782,400 against $2,576,000 in the like period.

Sorg Plans Stock Dividend

Directors of the Sorg Paper Co., Middletown, Ohio, have adopted a proposal to increase the authorized common stock of the company so as to permit payment of a 5 percent common stock dividend to the stockholders.

The directors advised the officers of the company to call a special meeting of shareowners during the first half of January, 1952, to amend the articles of incorporation for the common stock increase.

The company is expected to declare the common stock dividend within a reasonable time if the share owners grant their approval of the plan. Sorg has 176,905 shares of common stock outstanding.

Sorg directors declared a dividend of 25 cents a share on the common stock, payable December 21 to share owners of record December 13. They also declared a dividend of $1.37 a share on the 5½ percent cumulative preferred stock, payable January 1 to share owners of record December 15.

NEW LITERATURE

Cincinnati Lathe & Tool Co., Canedy-Otto Div., Cincinnati 9, Ohio. Catalog D-108, 16" 3000 bv/fv Drills." Also Bulletin 115V, "Canedy-Otto 3000 FV-Box Column Floor Drill 16." Both illustrate and describe the improvements in the line of drill machines which the company acquired from Canedy-Otto Mfg. Co. in 1949.

Henry A. Gardner Laboratory, Inc., Bethesda, Md. This company is offering an educational course consisting of lectures, laboratory work, and individual discussions to help technologists measure color, reflectance, gloss and other appearance attributes of materials. Write for further details and enrollment blanks.

General American Transportation Corp., 135 S. LaSalle St., Chicago 90, Ill. Bulletin, "Quality Equipment for the Process Industries." Contents: Conservation Structures; Custom Fabrication; Dryers; Evaporators; Filters; Gasholders; Mixing Devices; Offices; Sedimentation (Thickeners, Hydroseparators, Clarifiers); Storage Terminals; Transportation.

General Electric Co., Schenectady 5, N. Y. Slidefilm, "Productive Maintenance." A 12-minute film reporting the main elements of the program and how it is being put to use in industrial plants. Arrangements for showing should be made through the company's apparatus sales offices or service shops.

Hercules Powder Co., Wilmington, Del. Booklet, "Hercules CMC (Cellulose Gum)." Contains information on types available, viscosity, compatibility, and other data.

The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y. Brochure, "Nickel Alloy Steel Castings in Industry." 32 pp., 100 illustrations. Gives advantages and recommended specifications and compositions for typical service applications.

Lawrence Machine and Pump Corp., 371 Market St., Lawrence, Mass. Bulletin 206-4, "Lawrence Centrifugal Pumps." Technical and sales copy.

Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill. Folder No. 2386, "Link-Belt Non-Clogging Spray Nozzles." Contains information on cleaning all kinds of materials.

Soft Fibre Manufacturers' Institute, 9 Rockefeller Plaza, New York 20, N. Y. "Soft Fibre Twine Glossary." Simple definitions of Soft Fibre Twine terms which are common throughout the industry in the manufacture, distribution, and use of its products.

Towmotor Corp., Cleveland, Ohio. Plant safety kit, "Here Are 4 New Safety Tips." Consists of traffic markers, safety instructions for Towmotor operators, and humorously illustrated bulletin board "safety tips." The four new posters are available to all manufacturers without charge.

Westinghouse Electric Corp., Lamp Div., Bloomfield, N. J. Catalog 86-020, "Westinghouse Easy Guide to Electronic Tube Data." Lists tubes according to "family" classification and furnishes essential technical data on each tube.

GOVERNMENT GOSPEL

(Continued from page 15)

with the National Production Authority, U. S. Department of Commerce, today reported that the procurement of repair and replacement parts is the industry's chief problem.

The committee urged expansion of paper cup production because of increased demands resulting from a shortage of labor in eating places, health regulations and heavy requirements of defense plant cafeterias.

Several members reported that paper cups for hot drinks were particularly in short supply. NPA explained that hot drink cup production was above the January 1951 level, and that manufacturers' applications for allotments of materials indicated need for substantially greater output. Annual production of hot drink cups is two and a half billion a year.

Census Bureau Reports Sales Increases

WASHINGTON, Dec. 8 — Paper and paper products wholesalers showed a 24 percent gain in sales for 10 months of 1951, in Bureau of Census returns released this week, compared with the same months of 1950.

Sales in October aggregated, nationwide, $10,697,000, a rise of 17 percent over September, and 6 percent above sales a year earlier. Inventories rose 20 percent from a year earlier, but dropped 2 percent from September.

New England wholesalers reported October sales 18 percent above September and 8 percent above October, 1950, while for 10 months this year, their sales rose 23 percent over the corresponding period last year.

Middle Atlantic States firms reported October sales 22 percent above the September figure, and 9 percent higher than for October, 1950; sales for 10 months of 1951 were 33 percent higher than in the corresponding 1950 months.

For the South Atlantic area, sales for October rose 12 percent from September and 14 percent over October, 1950; for 10 months of 1951 they were up 26 percent; East North Central states firms reported October sales 21 percent above the previous month and 16 percent better than a year earlier; for 10 months this year they rose 21 percent; West North Central States' October sales were 21 percent above September's, and 16 percent higher than a year before. For 10 months this year they were up 26 percent.

On the Pacific Coast October sales were 5 percent above September and 3 percent better than a year ago; 20 percent better for 10 months of 1951.

Non-ferrous Metal Scrap For Industrial Use

Secretary of Commerce Charles Sawyer has issued a proclamation ordering that in the future government-held surplus stocks of aluminum, copper, lead and zinc scrap be made available to industry instead of being transferred to the strategic stockpile.

Under Secretary Sawyer's proclamation, government agencies generating such excess scrap will no longer be required to declare such materials for the strategic stockpile. The government-held excess is needed to help make up the deficiency in industrial requirements, the Secretary said.

"A lack of secondary and scrap aluminum, copper, lead and zinc, and their base alloys, is limiting production essential to the needs of our defense effort and our civilian economy," Secretary Sawyer pointed out.

The requirements for some months to come of these materials for direct defense production, defense-supporting industries, and essential civilian needs, "are substantially in excess of a foreseeable supply," he said.

It is estimated that about 4,000,000 pounds of non-ferrous scrap currently in the hands of government agencies, which would otherwise have been transferred to the stockpile, will be released to industry as a result of Secretary Sawyer's action.

Paper Industrial Leaders Meet with Quartermaster Procurement Officials

Procurement and production problems involved in the purchasing of file folders for the Armed Forces were discussed at a meeting, December 11th, of industry leaders with representatives of the New York Quartermaster Procurement Agency, it was announced today by Brigadier General R. P. Hollis, USA, Commanding.

The subjects discussed with members of the File Folders Division of the Quartermaster Association's Paper and Paper Products Industrial Group at the meeting included specifications of file folders for various purposes, methods of packaging and packing of folders for overseas and domestic shipments, *and distribution and use of current government stocks of this item.*

Colonel H. R. McKenzie, Chief, Quartermaster Purchasing Division, served as government presiding officer of the meeting. T. J. Salsman, President of Rockwell-Barnes Company, Chicago, Illinois, was Acting Chairman.

Other industrial leaders in attendance, included: Richard A. Jonas, Jr., President, Oxford Filing Supply Co., Inc.; J. B. Cowie, General Sales Manager, Hollingsworth & Whitney Company; and A. C. Black, International Paper Company.

Equipment

(Continued from page 32)

merge it during the testing. Such a test reveals important information regarding the wear life of materials in their wet state in comparison with abrasion resistance while dry.

The Drive Pin type of holder is designed for use in testing square specimens.

Write to Taber Instrument Corp., 111-PT Goundry St., North Tonawanda, N. Y., for Bulletins 5003 and 5105.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Nov. 10	Nov. 17	Nov. 24	Dec. 1	Dec. 8
1951	100.0	98.9	94.7	99.9r	99.2
	Nov. 11	Nov. 18	Nov. 25	Dec. 2	Dec. 9
1950	101.9	94.7	96.3	97.1	100.1

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	95.4	94.4	97.7	85.3	99.6	96.1	101.0	99.6	91.2	95.8
1951	99.3	101.3	101.9	102.8	102.2	100.1	88.6	97.7	94.8‡	100.8‡	98.4‡		

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	88.7	89.8	101.6	104.7	97.1	88.7	96.4	99.7
Year Average	88.1	89.4	101.1	104.3	96.2	88.6	95.8	

PAPERBOARD OPERATING RATIOS†

	Nov. 10	Nov. 17	Nov. 24	Dec. 1	Dec. 8
1951	86	86	75	80	86
	Nov. 11	Nov. 18	Nov. 25	Dec. 2	Dec. 9
1950	101	103	100	101	106

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Ave.
1950	88	92	91	92	91	94	82	100	96	102	101	95	94
1951	102	105	104	105	104	103	84	94	86	87	82		

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The black line on the chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1950 the ratio is shown on the new basis of normal 6 and 7-day capacities by the colored line. Paperboard operating ratios continue on the basis of a 6-day week.

† Per cent of operation based on "inch-hours" reported to the National Paperboard Association.

OBITUARIES

Wilbur N. Wilkinson, former president of the American Pulp & Paper Association, died Monday at the home of his son, Henry H. Wilkinson, in Nanuet, N. Y.

For many years he was sales manager of the Union Sulphur Company. During World War I, he was a member of the chemical section of the War Industries Board. He also was chairman of the chemical division of the First Liberty Loan Drive.

Surviving besides his son is a brother, F. H. Wilkinson, of Garden City, L. I.

William S. Brooks of Greenfield, Mass., died in Holyoke Hospital on December 7.

Mr. Brooks entered the paper business as a backtender at the Collins Manufacturing Co., North Wilbraham, in 1900 and rose rapidly to superintendent. He went to Holyoke, where he was with the Riverside and Linden divisions of the American Writing Paper Corp. for many years and later served as supervisor of all fine papers division of the American Writing. He later moved to Canton, N. C., where he was general superintendent of the Champion Fibre Co., and retired in 1935 due to ill health.

Besides his widow, he leaves a son, a sister, four grandchildren and several nieces and nephews.

Dr. James G. Vail, 65, retired vice-president of the Philadelphia Quartz Company, Philadelphia, died December 11 in New Delhi, India, where he was working at the Friends International Center for the American Friends Service Committee.

Dr. Vail joined the Philadelphia Quartz Company in 1905 as a chemist. He became chemical director in 1931 and vice-president in 1940. An authority on soluble silicates, Dr. Vail's publications and patents were largely on this subject. He was awarded the Chemical Industry Medal in 1933 by the Society of Chemical Industry. Before his departure to India, he had completed the manuscript for a new Monograph on silicates.

He was past president of the American Institute of Chemical Engineers, past chairman of the Philadelphia Section of the American Chemical Society, past chairman of the American Section of the Society of Chemical Industry, and a Fellow of the American Institute of Chemists.

Dr. Vail was a graduate of the Westtown School and had studied at the University of Pennsylvania, Harvard University and the Institute of Technology at Darmstadt, Germany.

He is survived by his widow, Ruth Russell Vail, and two sons, Benjamin of Media, Pa., and Philip of Topeka, Kansas.

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MICHIGAN STEEL CASTING CO.
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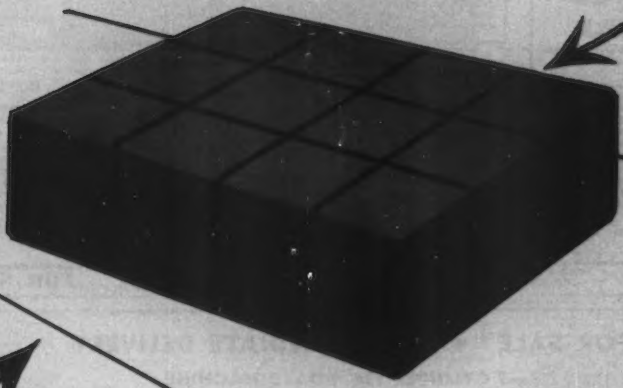
exporters of wood pulp
to all world markets

Parsons & Whittemore

paper exporters
wood pulp



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CLEARING HOUSE

HELP WANTED

MEN WANTED
POSITIONS OPEN

We can place—general supt. for Fourdrinier and Cylinder machine paper and pulp mill; gen. supt. for Fourdrinier and Cylinder board mill on folding and set up box board, chip and specialties, large plant, attractive salary; asst. supts. (2) Cylinder board mills; office mgr.; Yankee and Fourdrinier machine foreman.

Designers and draftsmen; master mechanics; plant engineers; instrument, electrical, mechanical and structural engineers; chemists, chemical engineers and laboratory men (many openings); chief power plant engineer; salesmen for New York area; machine tenders and back tenders.

LIST YOUR CONFIDENTIAL APPLICATION WITH US

to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.

SPECIALISTS IN PLACING AND IN SUPPLYING PULP AND PAPER MILL EXECUTIVES

D-21

SALES ENGINEER—Engineer with pulp mill experience wanted by well established machinery firm. Opportunity for advancement. Address Box 51-516 care Paper Trade Journal. TF

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-596 care Paper Trade Journal. TF

HELP WANTED

WANTED
PAPER MILL ENGINEER

Engineer-constructor firm has opening for Pulp and Paper Mill project engineer at Pittsburgh Headquarters. Must have 4 or more years experience in engineering department of a paper mill, or experience in pulp and paper mill design. In first letter submit complete resume of personal background, education, age, and experience. Write Box 51-525 care Paper Trade Journal. J-11

WANTED—Master Mechanic or Assistant for modern 2-Machine Tissue Mill. Progressive management; expansion program now under way. Fine opportunity for young/middle aged man to advance. Substantial paper mill mechanical experience with electrical background desirable. Give complete resume of experience in letter to Box 51-442 care Paper Trade Journal. Replies held strictly confidential. TF

WANTED — Machine Tenders and Back Tenders for corrugating medium and liner mill. Fourdrinier and cylinder machines. Located in Western Pennsylvania; good working conditions; pleasant surroundings and very good labor relations. Call collect—Tarentum 1470. TARENTUM PRODUCTS CORPORATION, Tarentum, Pa. TF

TOUR BOSS—Shift Work—High speed newsprint experience essential. Two machine modern mill, excellent working conditions. Give complete resume. Write Box 51-611 care Paper Trade Journal. D-28

HELP WANTED

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 42 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

WANTED—Adjuster on S.O.S. Potdevin Grocery Bag Machines. Top wages. Confidential. Address Box 51-618 care Paper Trade Journal. J-4

SITUATIONS WANTED

SUPERINTENDENT — Thoroughly experienced papermaker desires to make new connections. Conventional or Yankee Fourdriniers, light and heavyweight specialties. References. Address Box 51-487 care Paper Trade Journal. D-28

EXPERIENCED Paper and Board Mill Superintendent with equipment sales experience, seeks new connection operating small mill, or selling position. Available January 1st. Address Box 51-613 care Paper Trade Journal. D-28

SUPERINTENDENT AVAILABLE — 30 years experience in manufacture of lightweight tissues, toilet, facial, napkin, toweling, twisting, waxing, wrapping, etc. Cylinders and Fourdriniers. Desire position in smaller mill where low cost operation is a must and where superintendent must handle maintenance and papermaking from boiler room to shipping platform. Prefer to locate near N. Y. Address Box 51-622 care Paper Trade Journal. D-28

FOR SALE

FOR SALE

FOR SALE

FOR SALE • FOR IMMEDIATE DELIVERY

1—7 CYLINDER 136" BOARD MACHINE.

48" DIA. CYLINDER MOLDS WITH 17½" DIA. RUBBER COUCHES

2 Rubber Covered Suction Press Rolls.
Entire Wet End Timken Roller Bearing Equipped.
102—Dryers—42" diameter x 132" face. Equipped with Sheahan Rope Carriers. Dryers stacked vertical 4- 3- 6 high. Equipped with continuous oiling system.
1—Pair of Extractor Rolls.
2—9 roll Calender Stacks.
1—20' Dilts Hydrapulper.
2—Jordans.
$40,000 worth of spare parts.

THIS MACHINE CAN BE INSPECTED ON ORIGINAL FOUNDATION AND IS THE FINEST CYLINDER MACHINE ON THE NORTH AMERICAN CONTINENT.

Full specifications and prints on request.

ROSS PAPER MACHINERY COMPANY

265 Passaic Street — Tel. HUmbodlt 2-2177 — Newark, N. J.

D-21

FOR SALE
HYDRAPULPER

1—Shartle Brothers 10' Batch Hydrapulper with hydraulic dump valve and skip hoist. Complete, including drive—less motor. New 1947.

ROSS PAPER MACHINERY COMPANY
265 Passaic Street — Newark, 4, N. J.
Tel. HUmboldt 2-2177 — D-21

FOR SALE—52" Cameron type 8 Model 5 Slitter; 48"Kidder Model CH shear cut slitter; 76" Cameron Rewinder; 75" Moore & White Upright 2 drum Reel; 42" Moore & White Sheeter; 100" Dillon Sheeter. Thomas W. Hall Company, Inc., 120 West 42nd St., New York, 18. TF

PAPER COATING MACHINERY MANUFACTURERS—Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE—Cameron 62" Slitter and Rewinder; 6" x 7" Brightwoods and Inman Roll Feed Auto. Box Machines. COMPLETE SET-UP BOX MFG'R. PLANT SELLING OUT OVER 50 MACHINES. Bargains, write for listings. Address Box 51-626 care Paper Trade Journal. TF

FOR SALE

1—Complete Rotating Frame Drive Synchronous Tie Draw Control, consisting of nine sections suitable for driving Fourdrinier Paper Machine up to 170" in width, maximum speed 600 feet per minute, minimum 100 feet per minute, complete with all controls and necessary M. G. Sets. Address Box 51-628 care Paper Trade Journal. D-22

FOR SALE—7 Steam heated paper or textile drying drums. 36" diameter. 4 are 44" and 3 are 46½" face. Completely reconditioned with new ball bearing pillow blocks, rotary steam unions and flexible metal steam hose. Write for details: P. O. Box 7, Chatham, N. J. D-21

FOR SALE

2—16" A-1 Shartle Miami all bronze centrifugal stock pumps. Good condition.

2—16" A-1 Shartle Miami bronze fitted centrifugal stock pumps. Like new.

1—K-9 Nash vacuum pump with new spare rotor, shaft and bearings. Equal to new.

1—70" x 48" E. D. Jones steel tub breaker beater. Stainless steel filling. Good condition.

1—60" x 60" Shartle breaker beater. Cast iron sides and bottom. Hollow midfeather. Condition good.

4—42" x 60" Dilts beaters. Keyed bandless rolls. Cast iron tub. Electric lifting devices, hydraulic quick release lighters. 125 H.P. Westinghouse motors available.

1—60" x 152" Black-Clawson vat complete with mold. 18¾" diameter rubber covered couch roll. Anti-friction bearings. Condition good.

1—186" #19 Cameron winder. Drums 13¾" diameter x 190" face. Will rewind to 36" diameter maximum. Operates at 2700 F.P.M. Good condition.

1—30" diameter x 183¼" face of drilling Beloit suction couch roll.

1—38" diameter x 200" face of drilling Millspaugh suction press roll.

SHARTLE BROS. MACHINE COMPANY

MIDDLETOWN, OHIO

D-21

ROSS PAPER MACHINERY CO

241 PASSAIC STREET
NEWARK 4, N. J.

MACHINERY WANTED FOR OUTRIGHT PURCHASE
From a Single Item
to
A Complete Mill.

ASPHALT LAMINATOR
1—Black Clawson 42" Asphalt Laminator with 5 sets of presses—4 dryers 36" diameter Unwind stands and rewind stands.

BEATERS
1—Dilts 750 lb. Iron Tub. Roll 44" face x 50" diameter.
1—Downingtown 1000 lb. Iron Tub. New roll 48" face x 48" diameter.

CALENDER ROLLS
46 Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—3 roll—62". All rolls bored for steam.
1—Farrel Birmingham, 3 roll, 100" Calender Stack, with doctors, 3 rolls bored-for steam.
1—Black Clawson 124" 9 roll with doctors and oiling system.
1—Black Clawson 124" 7 roll with doctors and oiling system.
1—Black Clawson 90" 7 roll with 3 spare rolls.

CYLINDER MOLDS
1—134" face x 80" diameter, with stainless steel shafts.

DAMPENER
1—Valley Micrometer Unit for water finish on paper—120" deckle.

DRYERS
2—124" face x 48" diameter.
1—77" face x 48" diameter—with gear.
1—120" face x 10" diameter—Baby Dryer.
1—102" face x 48" diameter, with bearings.
5—(4)48" face x 42" diameter with bearings and gears.
1—102" face x 42" diameter Creping Dryer.
6—42" face x 36" diameter, with frames, gears and bearings.
19—60" face x 46" diameter, with gears, bearings and steam joints.
21—120" face x 42" diameter.
1—(4)" face x 42" diameter.
1—(4)" face x 42" diameter.
2—(4)60" face x 36" diameter, with gears and bearings.
1—(4)" face x 42" diameter.
12—(2)" face x 36" diameter. Complete with 2 dock frames, gears, bearings, steam joints, felt rolls, sole plate and 2 press sections.

EXTRACTOR ROLLS
1—Downingtown Extractor Roll 128" face x 24" diameter. Anti friction bearings.

FILTERS
1—Oliver Vacuum Filter. Cylinder 8' face x 5' 6" diameter. Iron and vat.

FLAT SCREENS
1—3 plate Sandy Hill Roller Shoe with scrapers.
1—Sandy Hill 12 plate roller shoe.
3—Bagley & Sewall 8 plate, with scrapers and plates.
1—4 plate tailing screens with scrapers.
1—4 plate tailing screen with scraper.

HYDRAPULPER
1—Shartle Brothers 10' batch Hydrapulper with hydraulic dump valve and skip hoist. Complete, including drive—less motor. New 1947.

HYDRAULIC PRESS
1—Thorpe 200 ton. Steam platens. 48"x48" with pump.

JORDANS
1—26 Miami, for motor drive.
1—Jones Majestic with base and couplings—

2—23 Annistons with base and couplings.
1—Jones Majestic, Stainless Steel Fittings.
2—E. D. Jones Pony, 8/10" stainless steel fittings—banded plugs. Spare bar fittings.
1—Smith & Winchester Stainless with granite fittings.

LABORATORY EQUIPMENT
1—Noble and Wood anti friction Jordan 12" plug —½" stainless steel fittings—direct connected to 10 h.p. 220/440/3 phase 60 cycle, 530 r.p.m. motor.

MOTORS
1—Allis Chalmers 50 h.p. 440 v. 900 r.p.m.
2—Westinghouse 100 h.p. slip ring, 440 v. 3 ph., 60 cyc. 900 r.p.m.
1—Crocker Wheeler 100 h.p. slip ring, 440 v., 3 ph. 60 cyc. 710 r.p.m.
1—General Electric 100 h.p. 440 v., 3 ph., 60 cyc., 575 r.p.m.
1—Western Electric 100 h.p. 440 v., 3 ph., 60 cyc., 885 r.p.m.
29 others 440 v. motors from 2 h.p. to 15 h.p.
2—Westinghouse 200 h.p. 2200 volts—3 ph.—60 cycle—600 r.p.m. Synchronous speed with controls and grids.
1—Westinghouse 150 h.p. 2200 volts—3 ph.—60 cycle—585 r.p.m. with controls and grids.
1—General Electric—75 h.p.—2200 volts—3 ph.—60 cycle—430 r.p.m.
1—General Electric—25 h.p.—230 volts—3 ph.—60 cycle—300/900 r.p.m.

PULP EQUIPMENT
1—Mills & Merrill 217 Pulpwood chipper.
1—Bird 6 bearing Pulp Screen. Practically new. Used 4 months.
2—AFMEW Ball Bearing Pulp Screens—30 ton capacity—downward flow.
1—D. J. Murray 10' X 25' Barking Drum.
1—Carthage 10 knife Chipper 16" spout with belt drive.

PULPERS
1—22 Lamneys.

PUMPS
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and h.p.'s. Most used less than one year.

REDUCERS
1—Link Belt 40 h.p. Ratio 2.2-1, 860 r.p.m.-397 r.p.m.

REELS
1—2 bowl 104"—22" diameter iron bowls.
1—2 bowl 94"—18" diameter bowl.

ROLLS—PRESS, COUCH, ETC.
32—Press rolls, brass and rubber covered.
12—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
2—22A Bird Rotaries. Copper rain.
1—27 Bird—covered vat.

RUBBER COVERS: COUCH ROLL
1—New 110" face x 18" diameter—1" rubber.

SCREW PRESSES
1—Valley Voith Screw Press Size 2.
1—Valley Voith Screw Press—enclosed drive.

SHEETERS
1—Rumbold 124" Duplex Sheeter with maxim layboy—4 roll backstand—motor and starter.
1—Moore & White Simplex 110" Sheeter with slitter—rewinder. Maxim layboy, rear hopping delivery. 3 roll backstand, motor and starter.

1—62" Kidder Reel Sheeter.
1—84" Duplex Gilson with 18 roll Rack Stand.
1—Beloit 112" duplex Sheet Cutter with duplex overlapping layboy, drive and motor.

SHREDDERS
1—American 27" Hammermill, anti-friction bearings.
1—Jeffrey 25½" Knives—7 knife rotor—6 knife bed plate. Ball bearings.

SLITTERS AND WINDERS
1—Beloit 120" Paper Machine Slitter and Rewinder—42" rewind.
1—Hudson Sharp 251"—60" Wax roll slitter and rewinder. New 1947.
2—Cameron 42" Model 6—24" rewind.
2—Miami 42".
1—Cameron 42"—Model 2B—3A.
1—Beloit 80" 2 drum, with Lewellyn Drive, shear cut slitters, backstand—24" rewind.
1—Langston 50" Shear Cut with 25 sets of slitters and motor.
1—Cameron 44" model 9-B.

STEAM TURBINES
1—De Laval 225 h.p. Initial pressure 140 p.s.i. Exhaust pressure 26 p.s.i. Complete with gear reducer.
1—De Laval Variable speed—270 h.p. at 155 r.p.m. and 30 p.s.i. exhaust. Complete with gear reducer.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
1—Beloit 8x10 Triplex.
1—Sterling 7 x 8 Triplex—all bronze. New 1947. Enclosed drives.

STUFF PUMPS
1—Triplex—7 x 14. Used less than 1 year.
1—Sherbrooke Ajax No. Suction 12" discharge 10" and 6". Anti friction bearings.

SUCTION COUCH ROLLS
2—Millspaugh 30" diameter x 234" drilled face with enclosed drive, water cooled bearings. 12" suction boxes and 1 spare shell.

SUCTION PRESS ROLLS
1—Sandusky 27" drilled face x 14" diameter.

SUPERCALENDERS
1—Norwood 74" 9 roll with unwind and rewind. Complete with drive and 2 spare rolls.
1—Norwood 64" 10 roll with unwind and rewind. Complete with drive and 2 spare rolls.
1—Norwood 64" 9 roll with unwind and rewind. Complete with drive and 2 spare rolls.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141 automatic 64" Perforator, slitter and Winder —with three meters—ball bearings.

VACUUM PUMPS
2—Nash 15 H-5 Vacuum Pumps
1—Sutorbilt 24"
1—Nash 24"

WAXING MACHINES
1—24" Pederin complete from 1st off to single roll rewind machine.
1—24" Special—complete from 2 roll 1st off to single roll rewind.

WET MACHINES
1—Appleton 74" face x 36" diameter cylinder.
1—Appleton 74" face x 36" diameter cylinder.

WRAPPING MACHINE
1—Morrow Stoweg type 10. Package thickness ½" to 5". Used 30 days.

WHY LIST YOUR EQUIPMENT? — WE WILL BUY IT.

FOR SALE

CAMERON SLITTERS

1—32" Type 9-S.
1—32" Type 8-S.
1—42" Type 6.
1—32" and 1—42" Type 40-2A.
1—42" and 1—62" Type 40-1-AF.
1—72" Type 10-S-14 Shear Cut.
1—72" Type 5.
1—62" and 1—82" Type 10.

OTHER SLITTERS

1—62" Beck Duplex Rewind Razor Blade Slitter & Rewinder. Suitable for paper and plastics.
1—48" Meisel Shear Cut, Series O.P. 2.
1—42" Kidder Merchant Model Pneumatic Control Shear Cut.
1—42" Type AA Langston Shear Cut.
1—36" Special Calliopeuse and Paper Slitter.
1—60" Hammersley Score Cut.
1—30" and 1—42" Langston Type A Shear Cut.
1—42" Langston Center Wind Duplex Shear Cut Slitter and Rewinder.

POWER PAPER CUTTERS

10—Seybold, 45" 4-Z, 44", 54" and 63" 20th Century; 34", 44", 48" and 54" Holyoke; Dayton, 50" and 74".
5—Oswegos, 32", 38", 44", 50" and 57".
6—Sheridans, 34", 36", 40", 50", 54" and 65".
1—Dexter, 50".
5—Acme, 32", 34", 36", 44" and 50".
1—Smith and Winchester Undercut 63".

MISCELLANEOUS MACHINES

1—36" Hudson-Sharp A-2 3 color Aniline Printing Press, with 4-A Sheeter. Roll to roll or roll to sheet.
1—24" Schultz Automatic Waxed and Shelf Roll Machine. Rewinds 25' to 250'.
1—41½" and 1—20" four unit Champlain Rotogravure Presses.
1—72" Hudson-Sharp 25W Winder for Waxed and Household paper rolls.
1—36" Beck Rotary Sheeters.
1—Sheridan Die Press, Model 8B Platen 33" x 46". Automatic Feeder.
1—New 24"—2 color, Roll to Roll Aniline Press.
1—48" Waldron Intaglio press for printing board in sheets.
1—52" Waldron Anti-friction Embossing Machine with Slitting attachment.
1—49" 2 Color Wolverine Aniline Hydro-Printer. Roll to Roll.
1—Ameroo heat sealing, crimping and folding machine.
1—62" Hammersley Squeeze Roll Waxing Machine.
2—Potdevin Waxing Machines, 82" wide.
2—Brand new 81" Dietz, very latest type, friction rewind combination toilet and towel roll converters. Automatic counters and stop motions.
1—McCabe Folding Facial Tissue Machine for making package facial.
1—45" and 1—48" Hamblet Rotary Sheeter.
1—64" Dilles Duplex Rotary Sheet Cutter.
1—94" Moore & White Duplex Rotary Sheet Cutter.
1—116" Model 29 Hamblet Duplex Rotary Sheet Cutter, slitting attachment, Erie automatic layboy and twelve roll backstands.
1—36", 1—50" and 1—74" Hamblet Single Rotary Sheeters with Layboys, Slitting attachments and Backstands.
1—55" nine roll Holyoke Super Calender stack with drive and AC motor equipment.
2—Asphalt Laminating machines, one 70" and one 80".
1—1 color Rotary-X Gummed Tape Printing Press.
1—84" Carthage wood chipper, 10 knives, belt drive.
2—36" x 76" Wet Machines.
2—22 Lamson Pulpers.
2—2000 lb. Niagara Iron Tub Beaters.
1—162" Moore & White 4-drum winder.
1—72" Holyoke nine roll Stack of Super Calenders.
1—10' diam. x 132" face Beloit Yankee Dryer.
1—114" Sandy Hill eleven roll stack of Calenders.
1—34" Waldron Gummed Paper Breaker.
1—40" Special roll to roll coater or Lacquer saturator.
1—48" Waldron, one unit roll to roll coater.
1—42" Waldron, 2 Roll, Roller Coater. Puts 2 coats on both sides of web at one time or any combination. Applies any material to paper, cellophane, plastics, etc.

We Want YOUR Used Equipment—
Write Us NOW

GIBBS-BROWER CO. INC.
Please address reply to Room 902
21 East 40th Street, New York 16, N.Y.
Telephone Lexington 2-5759

D-28

FOR SALE

FOR SALE

Five-color heavy duty 40" Rotogravure Printing Press in excellent condition—now operating.

Light tissue to 30 point board range. Hair-line register. Two-side printing (5 colors one side or 4 one side; 1 other side or 3 and 2) — Automatic CO_2 System — Large stock steel cored copper print rolls—27" to 45" circumference — Extra rubber rolls—Double rewind—Slitter bar—Spot register sheeter.

Replacement cost $150,000 minimum. Priced low for quick sale.

Reason for selling—present owner moving plant. This offer is open for one (1) month. Reply to Box 51-627 care Paper Trade Journal. D-21

FOR SALE

4—48" x 152" dryers with gears and bearings, new 1944
2—Vertical General Electric motors, 125 HP, 550 volt, sixty cycle, three phase
2—Jones pulpers with reducers
30—Dryers 48" x 46", chromium plated with gears and bearings
1—24" x 120" extractor roll
2—10½" x 170" suction felt rolls
1—18" x 104" suction press roll
1—New Westinghouse five unit drive for 80" machine
1—150 HP Westinghouse steam turbine and gear reducer unit, new 1944

Frank H. Davis Company, 175 Richdale Avenue, Cambridge, Massachusetts. D-28

BUY U. S. SAVINGS BONDS

WANTED

WANTED

80 to 100 inch creping machine capable of creping a 13 lb. sheet at 600 feet per minute. Address Box 51-621 care Paper Trade Journal.

D-21

WANTED—To Expedite Production—W & P Shredders, Slitters, Hydraulic Presses, Evaporators, Generators and Boilers, Sheridan Presses, Dryers. Will consider set up plant now operating or shut down. When offering, give full particulars. P. O. Box 1351, Church Street Station, New York 8. TF

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-89 care Paper Trade Journal. TF

WANTED—50" Paper Power Cutter. Must be inexpensive. Address Box 51-612 care Paper Trade Journal. D-28

MACHINERY WANTED — Bag Machine — maximum range 22" x 32". Give full details. Address Box 31-624 care Paper Trade Journal. D-28

SALES REPRESENTATIVES

EUROPE PULP AGENCY—Swiss Business man, representing Scandinavian pulpmakers, very well introduced, first class references, wants further direct mill representations for unbleached and bleached Sulphate and Sulphite for Switzerland and other Western European Countries. Address Box 51-614 care Paper Trade Journal. D-21

CLASSIFIED ADS BRING RESULTS

United Blacks
DIXIE • KOMOS
PARIS BLACKS
Carbon blacks for all paper and board stocks—outstanding soft texture, particle fineness and jet black color. Takes well to the fiber, shows high retention.
Best for performance in the Beater and Jordan because of ease of wetting and ready dispersion in the furnish.
UNITED CARBON COMPANY, INC.
CHARLESTON, WEST VIRGINIA
NEW YORK • AKRON • CHICAGO • BOSTON
AND OTHER PRINCIPAL CITIES
CANADA: CANADIAN INDUSTRIES LIMITED

WHERE TO BUY

ABRASIVES
Monsanto Chemical Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Norton Co.
Simonds Abrasive Co.

ADHESIVES
American Cyanamid Company Plastics & Resins Division
Diamond Alkali Co.
The Dow Chemical Co.
E. I. du Pont de Nemours & Co., Inc.
The Goodyear Tire & Rubber Company
Monsanto Chemical Co.
Morningstar, Nichol, Inc.
National Starch Products, Inc.
Nopco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Stein, Hall & Co., Inc.

ADJUSTABLE SHAKE MOTION
Manchester Machine Co.
Rice Barton Corporation

ADJUSTABLE TILTING MOTOR BASE
Lovejoy Flexible Coupling Co.

AGITATORS
American Paper Machy & Engrg. Works, Inc.
Appleton Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Moore & White Co.
The Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.
Shartle Brothers Machine Co.

ALLOYS
Michigan Steel Casting Co.

ANTIFOAM
American Cyanamid Company Industrial Chemicals Division
Hercules Powder Co., Inc.
National Aluminate Corp.
Nopco Chemical Co.

APRON CLOTH
Williams-Gray Co.

BAG MACHINES
Dilts Machine Works
Potdevin Machine Co.
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BARK BURNER
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BARK PRESS
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D. J. Murray Mfg. Co.
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Dilts Machine Works
E. D. Jones & Sons Co.
The Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BASIC WEIGHT SCALES
Thwing-Albert Instrument Co.

BEARINGS
The Bagley & Sewall Company
Black Clawson Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
The Moore & White Co.
The Noble & Wood Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
SKF Industries
Stephens-Adamson Mfg. Co.
Timken Roller Bearing Co.
Valley Iron Works Co.

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Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
The Noble & Wood Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

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Dilts Machine Works, Inc.
Downingtown Mfg. Co.
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E. D. Jones & Sons Co.
Leschen Wire Rope Div., Lukens Steel Co.
The Noble & Wood Machine Co.
Rice Barton Corporation
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Allis-Chalmers Mfg. Co.
Goodrich, B. F., Co.
The Goodyear Tire & Rubber Company

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Hofft Company, Inc.
Stephens-Adamson Mfg. Co.

BINS, STORAGE
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The Noble & Wood Machine Co.

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General Dyestuff Corp.
Rohm & Haas Co.
Virginia Smelting Co.

BLEACHING APPARATUS
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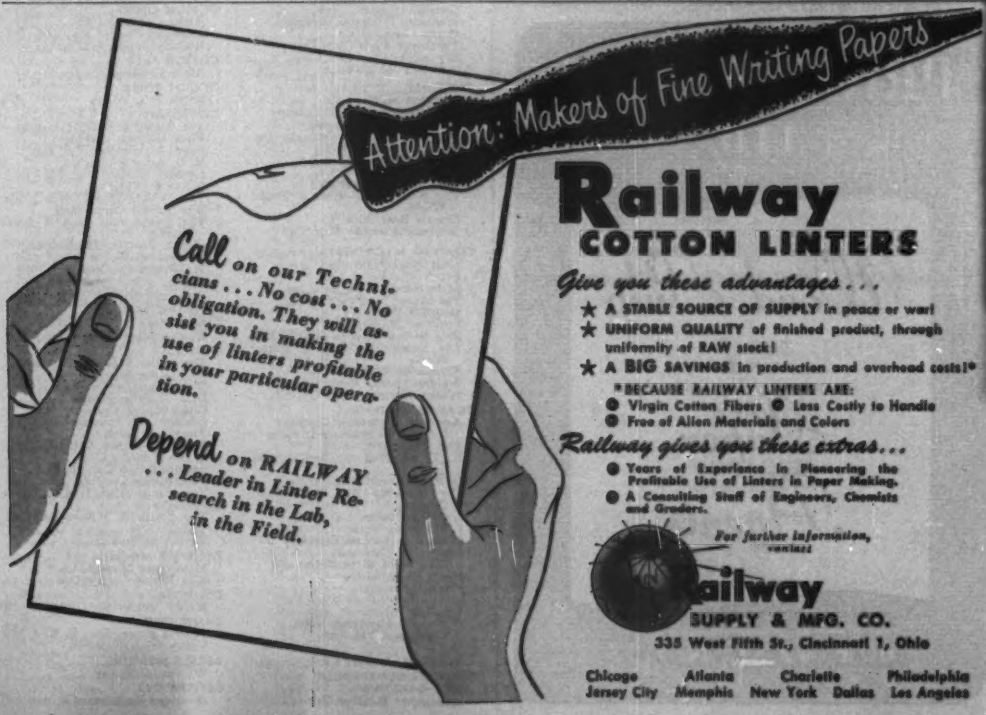
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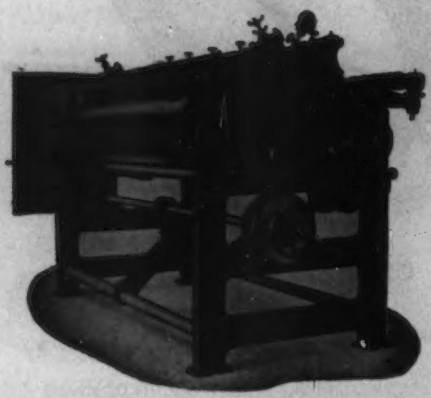

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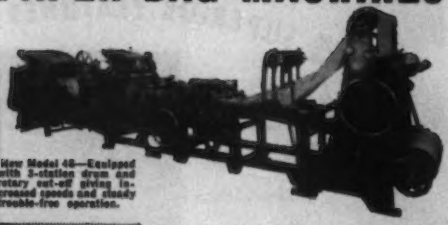

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Ebasco Services, Inc. — —
Egan, Frank & Co. — —
Elixman Paper Core Co. — —
Elwell Parker Elc. Co. — —
English China Clays Sales Corp. — —

F

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Fairbanks-Morse & Co. — —
Falls Chemical Products Co. — —
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Gotham Ink & Color Co. — —
Gottesman & Co. — —
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Grinnell Co., Inc. — —
Gulf Oil Corp. — —
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H

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Hercules Powder Co. — —
Hermann Manfg. Co. — —
Heyden Chemical Corp. — —
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Hooker Electrochemical Co. — —
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Hubinger Co., The — —
Hudson-Sharp Machine Co. — —
Hungerford & Terry, Inc. — —
Huyck, F. C., & Sons — —

I

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J

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Jones, E. D., & Sons Co. — —

K

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L

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Morden Machines Co. — —
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Morningstar, Nicol, Inc. — —
Mount Hope Machinery Co. — —
Murray, D. J., Mfg. Co. — —

N

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S

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Swenson Evaporator Co. Front Cover

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W

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Walworth Co. — —
Warren Steam Pump Co. — —
Waterbury Felt Co. — —
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